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ABSTRACT

This monograph examines benefits, challenges, and methods of expanding access to adult literacy with online distance education (ODE). The following are among the topics discussed: (1) reasons for considering ODE (new technologies and delivery systems in education; ODE in higher education, business training, and adult basic education; state-level efforts to try ODE with adult learners; Project IDEAL [Improving Distance Education for Adult Learners]); (2) challenges of using the World Wide Web in adult education (LiteracyLink and results of field tests of its Workplace Essential Skills component); (3) the Pennsylvania experiment in building system capacity for ODE (the program's support structure; distance enrollments; implementation issues); (4) the Australian experience with ODE (federal efforts; state efforts); and (5) implementation issues in implementing ODE for adult learners (models of implementation; planning for implementation; teaching at a distance; models for teaching and learning); (6) policy issues in implementing ODE for adult learners (professional development; emerging technologies; experimentation and accountability; control and distribution of ODE); and (7) research issues in implementing ODE for adult learners. (The bibliography lists 64 references. The following items are appended: an

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overview of ODE products for adult education; an interview guide for programs implementing ODE; and an outline of the Project IDEAL planning process.) (MN)

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Expanding Access to Adult Literacy with Online Distance Education

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Many of the lessons regarding the potential of online learning for adult education in the U.S. derive from our involvement as evaluators of two very innovative efforts. The LiteracyLink project—led by the Public Broadcasting Service (Noreen Lopez and David Collings) and the National Center on Adult Literacy (Chris Hopey, Steve Linberg, John Sabatini, Ashley DelBianco, and Dan Wagner)—developed the first nationwide online resource for adult learners. This project provided many insights about the readiness of adult educators to use online resources. But LiteracyLink's focus was on learners using online education in classroom settings. The Commonwealth of Pennsylvania, Bureau of Adult Basic and Literacy Education under Cheryl Keenan's leadership, saw the potential of the LiteracyLink online products to meet the needs of adult learners living in remote areas of Pennsylvania and launched a series of experiments to learn what was possible and what would be required to make this innovation succeed with adult learners. Dehra Shafer oversaw those experiments and provided the statewide leadership and technical support responsible for their success.

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Chapter 1

Why Consider Online Distance Education?

In the U.S. economy, education and training are keys to economic survival. Estimates of the number of adults who need educational services to secure a decent-paying job vary considerably, but it is widely claimed that existing classroom programs for adults reach only 3% to 5% of those in need. Although increasing the capacity of classroom programs might help, this will not meet the needs of many adults who are unable to attend classes because of constraints in their lives, such as their work schedule, transportation, and child care. Distance education is one way to meet their needs. Indeed, television is a distance technology that has been used for many years in adult education. For example, since 1989, Kentucky Educational Television's GED on TV has been broadcast throughout the country. But broadcast television is limited in two ways. It is a one-way medium: A teacher "talks at" learners who are expected to absorb the information. Also, it is virtually impossible to find broadcast times that will match the schedule of all learners.

A form of distance education built on the Internet may be more promising. It could provide an interactive experience as well as "anytime, anyplace" learning. Although online distance education (ODE) is not a new idea, it has not been used much with adult basic education (ABE), adult secondary education/general educational development (ASE/GED), or English for speakers of other languages (ESOL) learners. The emergence and rapid evolution of the Internet and World Wide Web as vehicles to deliver education at a distance has opened up new possibilities that make it more suitable for learners needing to improve basic skills than previously thought.

This monograph examines the potential of ODE to meet the educational needs of adult learners. It examines the feasibility of using ODE with adult learners and the factors that must be taken into account if ODE is to become widely used in adult education. The present chapter defines terms and reviews the use of ODE in other sectors. It also describes current efforts by states to experiment with distance education for adult learners. Chapter 2 examines the experience of the LiteracyLink project that developed Workplace Essential Skills (WES), one of the first ODE courses for adult learners. Although the national field test of WES examined usage in classroom programs, the research offers many lessons regarding the readiness of adult educators and adult basic learners to embrace online education. Chapter 3 describes the experience of a state that is trying to use ODE extensively for adult education. In the year 2000, Pennsylvania began to experiment systematically with delivering WES at a distance. Adult educators are learning what is entailed to identify and support distance learners, and these lessons are summarized in that

chapter. Chapter 4 looks beyond the United States, to Australia, for additional lessons. For many years, distance education has been an essential tool for the delivery of educational programs in this vast, sparsely populated country. The Australian experience provides useful insights for the United States. Chapter 5 identifies a number of issues central to making distance education succeed in adult education. If online education is going to grow as a delivery mechanism, there is work to be done at all levels: from developing and delivering the appropriate professional development opportunities for practitioners, to changing policies at the state and national level to make room for this approach. Appendix A is another useful section in this monograph. Some states (e.g., Missouri and Illinois) have developed their own online courses for adult learners, but most distance education efforts for adults in the United States involve selecting an existing classroom product (for example PLATO, SkillsTutor, or GED Connection) and adapting it to distance use. The appendix contains a detailed description of eight products commonly used in online distance education efforts.

Terminology

It is helpful at this point to define several terms used throughout this monograph. The students of interest are adult basic learners, defined as adults aged 16 and over who need ABE, ASE, ESOL, GED, and/or workplace skills training. These classifications all have to do with adults who need to improve basic English language skills or basic literacy skills in the areas of reading, writing, and/or mathematics. We are not focused on adults seeking tertiary (college) education or professionals seeking continuing education, although we look briefly at these two sectors for ideas about distance education.

Distance education and distance learning are often used interchangeably, although the two terms reflect a different point of view. Distance education takes the view of the educator who is providing the learning opportunity. Distance learning takes the view of the student and refers to studying in a non-classroom setting. Online distance education refers to education in which all or part is built on resources available on the Internet. The common denominator is that learners (and teachers) utilize a computer connected to the Internet. The Internet may provide information and activities for the learner utilizing the Web. It may provide e-mail or discussion boards to support exchanges between student and teacher or among students in the same class. The Internet may also be used to exchange electronic files such as audio or video clips, or homework documents created by teachers or students.

It is worth noting that the Internet and the World Wide Web are not synonymous terms (Wallace, 1999). The Internet refers to a massive network of networks connecting computers around the globe. Through the Internet, a computer

can communicate with any other computer as long as they are both connected to the Internet through a known Internet address. Information travels over the Internet using one of a variety of languages, called protocols. E-mail uses the Standard Mail Transfer Protocol (SMTP) to exchange text messages. The World Wide Web is an information-sharing model that is built on top of the Internet. The Web uses the Hypertext Transfer Protocol (http) to transmit documents containing text, graphics, sound, and even video. Using a browser (e.g., Explorer, Netscape, or Opera), a person can view the documents on any computer, regardless of its operating system or software. Designers of Web pages frequently include hyperlinks that allow a user to jump to other Web pages that the designer thinks have utility for the user. Thus, the Web is just a portion of the Internet, albeit a large and important portion.[1]

Distance Education

What is distance education? Moore and Shin (2000) define it as "having the defining characteristic that, for all or most of the time, the teaching occurs in a different place from where the learning occurs, so that the normal or principal means of communication is through an artificial medium, either printed or electronic" (p. 215). Although it is frequently thought of as an alternative to classroom-based instruction, mixed or blended models can be found in which learners study much of their time at a distance but come together face-to-face at various times. (See Wonacott, 2002, for a discussion of blended models in adult and career/technical education.)

Distance education began in the second half of the 19th century with the exchange of print materials, assignments, and feedback by mail. Over the course of the 20th century, the development of radio and television made the delivery of additional materials (lectures and demonstrations) by electronic means possible. The 1950s saw the growth of a number of video projects that sought to identify expert science, math, and language teachers who could spread their expertise to students across a region or across the whole country. In 1989, Congress enacted the Star Schools legislation, intended to deliver quality instruction to largely rural or underserved areas. Among the Star School projects were three courses designed for adult learners, two of which used a studio teacher providing regular classes on topics ranging from job-seeking skills to skill-building needed to qualify for the GED.[2] Over the 20th century, the technological possibilities have changed, although the pedagogical model has not. Most distance courses that use the newer media (e.g., television) are still built on a transmission model in which instructors create material to be consumed by learners, and learners are given exercises and tests that they submit to the teacher to demonstrate they have mastered the material—that they understand it, remember it, and can apply this knowledge in testing situations.

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[1] Some of these definitions are taken from www.webopedia.com

[2] See www.ed.gov/prog_info/StarSchools/

More recent technologies have expanded the number of communication channels available to distant educators. E-mail and computer conferencing began in the early 1970s as part of the government sponsored ARPANET (Advanced Research Projects Agency Network).[3] Scientific work groups quickly adopted these communicative tools to advance collaborative activity at a distance, but they were not available to educators and off-campus students for another decade. In education these tools could permit learners to exchange and debate ideas. But only in recent years have educators recognized the potential of these tools to support a different model of distance education—a model built on more constructivist principles of learning. In the 1990s, new tools became available to the scientific community: the Internet and the Web. By the mid-1990s, these were made available to the broader public. Educators recognized the potential of these technologies immediately, and a few distance educators began to recommend a new model of education that emphasized the qualitative improvements in learning itself, if learners had ready access to a variety of electronic materials and were supported in examining and discussing these materials with other learners. These educators sought to distinguish this form of distance learning from more traditional forms by using new terms: distributed or flexible learning. (See, for example, Carr-Chellman & Duchastel, 2000 or Rudenstam & Schoenholtz-Read, 2002.) In 1995, the LiteracyLink project was funded to create two adult literacy products—WES and GED Connection—both of which had an e-mail and Web component designed to take advantage of the new media. Both were designed for classroom use, but their distance possibilities were recognized soon after they were released to the adult education community. The adaptation of WES to distance education is related in Chapter 3.

New Technologies and Delivery Systems in Education

Bringing about any kind of change in the delivery of education is difficult. Hall's research on K–12 curriculum innovations suggests that with all the right conditions in place, it may take three to four years for teachers to adopt, adapt, and incorporate new curricula into their teaching repertoire (Hall & Hord, 1987). Research on the adoption of computer technology in K–12 also supports the notion that adoption of computer-based innovations is at best a slow and incremental process within existing educational structures (see, for example, Office of Technology Assessment, 1988; Becker 1994, 1998; and Cuban, 1996, 2001). ODE is not a typical mode of delivery in K–12, although a Congressional report documents many small efforts aimed largely at reaching students in rural areas (Office of Technology Assessment, 1989). Two examples are illustrative of the constraints and opportunities ODE presents. Both are projects underwritten by the Star Schools legislation. The Virtual High School uses the Web to provide low-enrollment classes (e.g., AP Physics) to a consortium of small high schools. A faculty member from a school in the

[3] See Harasim, Hiltz, Teles, & Turoff (1995) for a history of this phenomenon.

consortium teaches each course. Although the innovation holds a lot of promise, it faces a number of challenges, including allocating teacher time between the host school and the Virtual High School course, adequate professional development for online teachers, and adequate electronic tools to support the underlying model of instruction. Another K–12 example suggests that adoption of ODE can be swift when the innovation fits a unique niche and does not need to be adapted to fit an existing educational delivery system. The CLASS Project at the University of Nebraska is one of the few examples of ODE in K–12. It was begun in the mid-1990s to provide credit courses and even high school diplomas for high school-aged youth who cannot find needed courses in their local high school or for some reason cannot complete the requirements at their local high school. The project was designed as an ODE system in its entirety. It is funded by tuition. (See www.ed.gov/EdRes/EdFed/Star.html for details about these two projects.)

ODE in Higher Education and Business Training

Most of our knowledge about online education comes from work in postsecondary and professional education. In a recent study issued by the U.S. Department of Education, National Center for Education Statistics (1999), the number of higher education institutions offering distance education courses increased from 33% in 1995 to 44% in 1998. Of the four-year public institutions, 79% were offering distance education classes in 1997–1998. Distance education course offerings and enrollments have nearly doubled between 1994–1995 and 1997–1998, as have the number of available degree and certificate programs. The Institute for Higher Education Policy (2000) estimates that distance courses currently have an enrollment of 1.6 million students and that online education is the most rapidly expanding segment of the distance learning market.

The use of online training is growing rapidly in workplace training as well. Businesses are adopting Internet technology for training as a way to reduce training costs, provide worldwide accessibility, and improve technological capabilities (Brown, 2000). Online instruction offers greater flexibility and less "down time" because employees can receive training on an as-needed basis.

ODE did not come easily to higher education. Those institutions with online offerings needed to build an infrastructure, train faculty, identify the target students, and deal with organizational tensions as their universities redefined their mission to include virtual-campus offerings. Askov and Simpson (2002), as part of a study of students in the online M.Ed. program in adult education at Pennsylvania State University, discuss the planning process associated with the World Campus (www.worldcampus.psu.edu). The World Campus resulted from university strategic planning and a presidential initiative that fulfills Penn State's historical outreach

effort to provide access to higher education throughout Pennsylvania, the nation, and the world. To encourage student enrollment and commitment, only certificate or degree programs are offered on the World Campus. Program development and delivery takes a team approach involving not only faculty for content development, but also instructional designers, programmers, a program manager, and marketing and research specialists. As Penn State's 25th campus, the World Campus has the same infrastructure as any other campus, with a registrar, bursar, financial aid, student advisement, and technical support. The last, offered 18 hours per day via a toll-free number and e-mail, has proven essential to the success of the World Campus for both students and faculty. (Students are informed of the computer and Internet requirements in advance; they are also encouraged to take free online instruction through World Campus 101 to learn how to navigate through a course.)

The reward structure is in place for faculty and departments to engage in the World Campus. Penn State encourages faculty to participate by providing release time for two semesters before a course is offered so they can work with an instructional designer to develop a course. Whenever faculty teach a course for the World Campus, they are released from teaching a course on campus through a salary buy-out to the department, ensuring that the course is taught as part of their regular workload. Faculty development is offered regularly through an online course as well as periodic workshops that also encourage faculty to share their experiences with each other. Faculty and students receive online newsletters that provide information about new programs as well as updates to program operations. This approach appears to be successful as enrollments are growing rapidly, and satisfaction among students and faculty is high. The Penn State experience highlights how different ODE is from traditional classroom-based instruction and points to the need for extensive planning and staff development to be successful.

Is ODE Effective for Higher Education and Business?

Although ODE is a relatively recent phenomenon, research studies have begun to appear. The studies can be usefully divided into two categories. First are studies designed to determine whether online and classroom-based courses are comparable. By and large these studies support the notion that there are few differences in satisfaction and quality of the learning experience, as measured by test scores, course grades, and student ratings (Hiltz, 1994; Hiltz & Turoff, 1993; Maki, Maki, Patterson, & Whittaker, 2000; Tolmie & Boyle, 2000). Second are studies of factors that relate to student satisfaction. Gunawardena, Lowe, and Carabajal (2000) found that the most significant predictors of satisfaction with online courses were individuals' computer competency and perception that they were perceived as "real" by others in the course. Cox (1999) found that the pace and flow of online discourse were important factors. Learners wanted to feel the pace of discussion would yield

useful learning. Johnston and Young (1998) studied adult educators taking various professional development courses online and found that the pace of the courses (assignment due dates) was a problem, but this had nothing to do with the online character of the course. In general, the courses worked well, and participants reported that the experience compared favorably with face-to-face professional development. The courses included a number of online tools that were novel for the participants: a notebook, an electronic portfolio for assignments, a collection of video clips that could be streamed for viewing, a discussion board, and a chat facility. These tools were highly regarded, although the synchronous chat was deemed ineffective. In short, research supports the notion that online learning provides many or all of the benefits of classroom-based learning for learners with high academic abilities, subject to minor adjustments of the instructional strategies.

ODE for Adult Basic Education Students?

Online education has been growing rapidly in higher education and business, but the question remains whether adult education programs can use technology to reach out to learners separated by space and/or time. Is distance education viable for learners functioning below a high school completion level? Is the technology required for ODE readily available to adult learners? Are there curricula available that meet adult learners' learning goals?

Consider the requirements for online learning. Students must have access to a computer connected to the Internet at home, in a library, or in a community technology center. They must be minimally competent in operating a computer and accessing information on the Internet. Although some adult education programs now use computers in instruction, many use outdated computers that are still not connected to the Internet. The students served are the least likely to have access to computers, the Internet, and the knowledge to use either one. This so-called "digital divide," or the gap between the "haves" and "have nots" of technology, has captured media attention.[4] Those who are educated and have access to technology benefit from economic prosperity and the availability of jobs. Those who are not educated to their potential tend not to have access to technology and do not hold jobs that form a meaningful career path. Without access to and knowledge of the Internet and online learning, low-literate adults have little chance to successfully bridge the divide. Thus, while using the Web for instruction may help, computer access creates a challenge for implementing online distance education programs for adult learners.

To study at a distance successfully, students need to possess certain characteristics. Whether the education is delivered through print, video, or online

[4] National Telecommunications and Information Administration, 1999; (www.digitaldividenetwork.org)

means, all distance education programs have certain expectations for students. Successful distance learning students are likely to be self-motivated, be comfortable working independently, and possess strong study and organizational skills. Only a subset of adult basic learners possesses these characteristics. Despite the potential challenges for using ODE with adult learners, many states are exploring ODE as a way to expand access to educational services.

Current Statewide Efforts to Try ODE with Adult Learners

A number of adult education products are available for ODE. As noted earlier, the LiteracyLink project has created two products for adult education that have an online component for learners as well as an online management system that lets teachers use the Web to interact with students regarding their assignments. These are WES and GED Connection. Several older curricula—PLATO and SkillsTutor—have been transported to the Web to facilitate online delivery. The availability of these products has stimulated a number of adult educators to consider using them for ODE.

In 1999, the U.S. Department of Education, Office of Vocational and Adult Education (OVAE), began encouraging states to experiment with new ways to increase the number of adults being served. Distance education was identified as a possible means of expanding services to adult learners and reaching a potentially untapped learner population—those individuals who are unable to attend classroom-based education programs and/or might otherwise not pursue formal education opportunities that involve attending classes. Given the way distance education models and Internet-based approaches in particular have met the access needs of many businesses and postsecondary institutions, policymakers and state directors of adult education have begun exploring whether the same technology can be similarly harnessed to meet adult learners' needs. This section describes the steps various states have taken to use ODE for adult learners.

Statewide Materials and Program Development Efforts

The states of Delaware, Illinois, Kentucky, and Missouri have chosen to develop online programs for statewide delivery of a single curriculum. Three of the states have developed or are developing either GED or high school completion programs that enable state residents to complete all course and degree requirements (with the exception of testing activities) online. Adult education in Kentucky has partnered with the state's virtual classroom system (Kentucky Virtual High School and University) to offer several prepackaged programs through its Web site for all adult learners in the state.

Delaware

Delaware offers a full high school completion program online, titled Diploma at a Distance (www.diplomaatadistance.org), that is based on state standards and requirements for traditional high school degree programs. Delaware's program is a carefully structured curriculum with rigorous requirements that is designed to help adult learners earn their diplomas. Semesters are divided into 10-week increments, and students are expected to work between 12 and 20 hours per course per week. All testing is done in face-to-face settings, but instruction is entirely online. Delaware plans to develop other online courses targeted to ABE and GED learners as well as an online family literacy resource center. Delaware's vision for online learning includes professional development courses and communication centers for adult educators across the state. All products are intended to be fully operational by 2005.

Illinois

In summer 2002, Illinois released an interactive online GED preparation program (gedillinois.org). Designed by the Center for the Application of Information Technologies at Western Illinois University, GEDIllinois is designed to supplement classroom-based programs and also to serve as a self-contained distance program that adults can use on their own or with the help of a distance instructor. Developed in a partnership between the Illinois Department of Education and Illinois Employment Security, GEDIllinois is available to state residents and includes a pre-enrollment self-assessment. The assessment site, called OASIS, is intended to help potential students determine whether they are well-suited to be distance learners. It also provides a short tutorial on the computer and Web browser requirements to utilize the program.

Kentucky

Kentucky has made a major commitment to providing online instruction for three student markets: high school, university, and adult education. The adult education site, called Kentucky Virtual Adult Education (www.kyvae.org), provides adult learners around the state with access to a number of self-paced online courses, most notably a suite of courses from PLATO and Destinations. The PLATO software includes a complete GED preparation program along with simulated GED tests. Kentucky is unique in emphasizing Web-based courseware that both monitors learner time on task and has built-in tests to measure student progress. Students must register through an adult education center and complete entry/exit testing at the site. As information regarding Kentucky Virtual Adult Education is disseminated, the state anticipates eventually tapping into a large adult education population not currently served in classroom programs.

Missouri

Missouri offers adult learners statewide the opportunity to study online for the GED (www.gedonlineclass.com). Begun in the fall of 2000, the program is built on the WebCT learning management system (LMS).[5] A single teacher in Kansas City has been building the curriculum, lesson by lesson. The program began with a collection of worksheets but quickly evolved to allow learners access to SkillsTutor and other Web-based resources. As of May 2002, approximately 1,200 students had registered on the site. About 300 have become official students, taking the required TABE[6] assessment and actively doing assignments. Three instructors around the state support learners. The project estimates that a teacher can be assigned up to 100 students, with the expectation that the teacher can support interactions with 20 to 30 students in any one week. Applicants take the TABE online. Those who score below the 8th grade level are directed to work on assigned exercises in SkillsTutor rather than pursue the GED preparation activities.

Florida

Florida (and California as well) offers a variety of online distance education opportunities. Individual agencies seeking to serve a particular geographic area or learner type have developed specific programs and instructional materials. Although these states offer funding for program development and delivery, local agencies, programs, and/or regional centers determine whether to offer distance education.

Florida has two projects that use the Web to reach adult learners. The Literacy CyberSpace project (literacy.owcc.net) is designed to give adult learners in Florida's northwest panhandle area Web-based access to literacy instruction and work readiness skills. The Web is also used to provide information on area support services. The site is aimed at learners with educational skills below the 9th grade in reading, writing, and math. Learners using the site are advised to have a mentor from a local literacy provider. At the other end of the state, in Miami, is The Learning Center Online (TLC) (www.tecmiami.com/tlc). Housed at the Miami-Dade English Center, TLC provides a variety of online workforce-related courses. All materials students need can be found on the Web. The online lessons are delivered using a variety of tools: Online versions of SkillsTutor are used for GED and basic skills training, and WebCT is used to deliver vocational and ESOL courses.

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[5] WebCT is an online educational delivery platform. It provides a shell of virtual services associated with typical classroom instruction: a calendar, a place for course content, e-mail and electronic discussion tools, and a grade book. Another popular platform is Blackboard. See www.edutools.info/course/index.jsp for a comparative review of features.

[6] Test of Adult Basic Education is one of several standardized tests used to gauge the reading and math skills of adult learners.

The Florida Department of Education has also underwritten several Web-based efforts to extend access to learning opportunities for both adult educators and learners. As the majority of adult education teachers are part-time, Florida is trying to deliver professional development via the Web or CD-ROM to extend "anyplace, anytime" options to educators. Florida TechNet (www.floridatechnet.org) is a technology and distance learning initiative that provides Florida's adult and community educators with Web-based training, technical assistance, and targeted training. Currently, the project offers 23 Web-based professional development modules on topics ranging from teaching ABE learners to marketing adult education programs.

California

No state has created more Web-based resources for adult education than California. With leadership from the Outreach and Technical Assistance Network (OTAN) in Sacramento (www.otan.us), the state has been supporting the development of a variety of online resources for adult learners and educators since the early 1990s. OTAN has many responsibilities, including providing technical support and training, evaluating and maintaining collections of software for instruction, developing resources for adult educators and students, and promoting experiments with promising technologies. OTAN is also a developer for Web-based adult curricula.

Since 1995, the California Distance Learning Project (www.cdlponline.org) has offered online literacy services using news stories as the focus. Learners can view video clips of the original stories as well as edited versions of the stories. They can also participate in lessons and quizzes based on the stories.

Earlier than other states, California recognized the need to develop alternative methods to meet the needs of a changing population that could not be served by traditional classroom programs. In 1993, an education panel delivered a report that urged the state to consider funding projects giving students flexibility regarding when and where they received instruction. In response, legislation was passed to permit adult schools in California to allocate up to 5% of their block entitlement funds to innovative techniques and nontraditional instructional methods utilizing new technologies.[7] In 2000–2002, more than 21,000 adult education students in California—91% of them ESOL learners—participated in adult basic distance learning. However, the number using the Internet for instruction was limited (Porter, 2002).

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[7] For a description of the program and the innovations that have come from it, see www.cde.ca.gov/adulteducation/supplement_progs/fiveper/fiveperalphalist.html.

There is a general feeling in California that the use of the Web for adult instruction is still in its early stages, largely because of the limited adult-specific content. However, its use is expected to increase over the next five years (ibid., p. 27). The state is promoting the "high beginner" ESOL English for All video, print, and Web-based curriculum (www.myefa.org). User training is provided throughout the state. Similar efforts in ESOL, GED, and adult secondary education are expected. Authoring tools for the Internet, enabling instructors to create learning materials and enroll and track learners, are also being promoted (www.thestudyplace.org).

Delivery of Existing Adult Education Products at a Distance

A number of states are exploring the use of online methods for at least part of the delivery of existing products. For these states, the key issues are how to recruit and support adult learners suited to studying at a distance. The Commonwealth of Pennsylvania is heavily committed to experimenting with distance learning in a systematic way to assess its viability for teaching adult learners and to build a cadre of expertise among educators in the state. The first experiment, a three-year effort to have literacy centers deliver "WES at a Distance," was launched in 2000. WES at a Distance is the name given by Pennsylvania to this set of experiments. Teachers in 20 adult education centers around the state have been testing the viability of offering this course to a variety of distance students. The hope in the initial year was that each center, using two half-time teachers, could reach and support 150 learners. Experience has taught them that the number of students these teachers can support is closer to 50. Details of this experiment are provided in Chapter 3.

Encouraged by the results after 18 months, Pennsylvania expanded the number of distance experiments in 2002–2003. Eighteen centers offered WES at a Distance. Each site has a negotiated target ranging from 25 to 75 students. This was possible because the sites already had one year of experience on which to base their goals. These numbers translate to a total of about 1,000 learners in the WES program. New distance experiments involving an additional 500 students were also started around GED Connection, TV411, and Madison Heights/Lifelines. As can be seen from this collection of products, Pennsylvania is not committed exclusively to online delivery—Madison Heights/Lifelines does not have an online component. But online delivery is an important piece of its strategy.

Project IDEAL: Collaborating to Build Capacity to Deliver at a Distance

In response to OVAE's encouragement, a number of state directors and program developers in 2000 began to explore the possibility of using distance education approaches. As distance education was unfamiliar to many educators and funding to research and implement new programs was limited, several states decided to pool

their resources to develop sound distance education strategies. In March 2002, 13 states (Arkansas, Idaho, Illinois, Kentucky, Maine, Massachusetts, Missouri, North Carolina, New York, Ohio, Pennsylvania, Rhode Island, and South Carolina) committed to work together formally in an effort titled Project IDEAL—Improving Distance Education for Adult Learners (www.projectideal.org/). Each state had been working independently or had planned to begin work on some form of distance education. Project IDEAL offers a means through which states can collaborate, share resources, and learn from one another as they develop tailored distance education programs to meet the specific needs of their learners.

All but one of the Project IDEAL states have chosen to use at least one adult education product that includes an online component. (North Carolina is working with the ESOL video and print series Crossroads Café but plans to develop its own Web component to support ESOL learners.) The majority of states (Arkansas, Massachusetts, Maine, New York, Ohio, Pennsylvania, and South Carolina) have chosen to experiment with distance education approaches using multimedia products (print, video, online) that include a Web component, such as GED Connection and Workplace Essential Skills. Other states (Idaho, Kentucky, and Rhode Island) have selected educational products that use the Web as the sole delivery mechanism for distance education. These states are utilizing such skills development and GED preparation programs as SkillsTutor and PLATO. As described above, Illinois and Missouri each developed a custom online GED preparation program. These states are designing experiments around the statewide implementation of their new curricula.

The Project IDEAL staff is working with each state to design systematic experiments around issues ranging from recruitment to teaching. Chapter 3 describes a series of design experiments in Pennsylvania; all Project IDEAL states are doing similar experiments. This replication across a wide range of learners and teachers will permit the project to derive strong conclusions about what works, under what conditions, and for what kind of learners.

As the states set up their experiments, they will share their experiences through monthly conference calls concerning a variety of topics, including teacher training, recruitment, curricular content, developing learning communities, retention, and assessment. The information generated from the states' experiences will be synthesized and disseminated through a variety of products: an annual edition of a *Handbook of Distance Education for Adult Learners,* an updated online course designed to help states train adult educators, and an annual face-to-face meeting to share best practices. Several of this monograph's authors[8] are coordinating project

[8] Jerome Johnston, Leslie Petty, and Shannon Young.

activities, providing teacher and administrator training, and designing products and services that help the states as they experiment with various distance learning models and educational products.

Conclusion

As of 2003 it can be said that at least 19 states have a strong interest in using the Web to provide learning opportunities for adult learners. Several states already have a visible Web presence for adult learners, and many others are prepared to build a presence if this form of instruction is shown to provide cost-effective approaches to expanding services for adult learners. In the next chapter we explore the professional development challenge: Are the teachers and administrators that comprise this country's adult education delivery system prepared to incorporate online distance education into their instructional repertoire?

Chapter 2

Challenges of Using the Web in Adult Education: LiteracyLink in the Classroom

One assumption regarding the use of the Internet in adult education is that Web-based instruction will be of value in helping students both learn course content and develop computer and Internet skills in the process. In examining this assumption, many questions arise regarding whether the field of adult education is indeed ready to utilize online instructional programs. The introduction of new technology poses significant challenges in a field traditionally plagued by high teacher and student turnover, inadequate resources, limited professional development, inconsistent student attendance, and diverse learner needs. As more adult educators work to integrate Internet-based activities into their learning environments, several issues need to be addressed to ensure thoughtful, sustained use of a powerful, ever-expanding medium.

The development of new Web-based products and the research surrounding those products provide data that can help adult educators understand and successfully adopt Web-based learning. This chapter examines the experiences of the LiteracyLink project as it developed Workplace Essential Skills (WES), prepared various teachers and sites to utilize the WES educational system, and participated in the ongoing delivery, support, and evaluation processes associated with a new product. The lessons from two research and evaluation studies, combined with various follow-up activities, highlight the strengths and problems associated with a product that requires both knowledge of the Web and the ability to successfully tap into the various strengths and capabilities of the systems through which content is delivered. Many of the issues revealed during the LiteracyLink studies reflect more widespread trends in adult education and are important considerations for implementing any ODE program. Thus, although this chapter does not directly examine the distance aspects of online education, the insights these studies provide can guide the field as it embraces new technology-based learning in both traditional classroom settings and distance learning environments.

LiteracyLink

In 1995, the Public Broadcasting System (PBS), along with the University of Pennsylvania's National Center on Adult Literacy (NCAL) and Kentucky Educational Television (KET), formed the LiteracyLink partnership to design two innovative adult education products. With a $15 million grant from the U.S. Department of Education Star Schools program, they developed the adult literacy multimedia series—WES and GED Connection—as well as professional development materials for adult educators (LitTeacher and PeerLit).

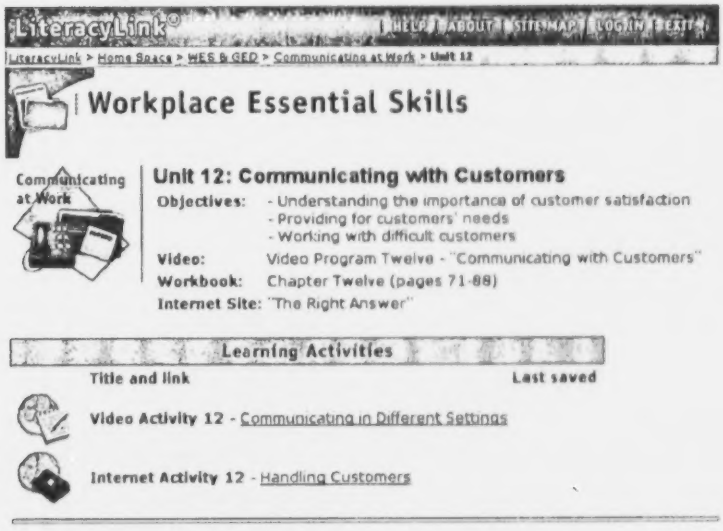
The first product completed was WES, an adult education curriculum that introduces learners to the job search process and elements of workplace environments. WES is a 24-unit multimedia curriculum (workbook, video, and online) aimed at improving learners' workplace-related math, reading, communication, and employment skills. The series is designed for adults reading at the 5th to 8th grade levels who want to enhance their skills to either secure a job or to advance within their current positions.

WES was the first adult education curriculum to utilize three media. Content and instruction are linked across media and tap into the strengths of each system. For example, videos include behavior modeling presented through a variety of real-life and fictitious employment-related scenarios. The print component provides opportunities for students to practice content and skills introduced in the videos. The online component expands students' access to a broader range of materials and facilitates their development of basic computer and Internet skills. The Web portion of WES both draws the greatest interest from students and provides the greatest challenges for teachers and students. Teachers must discover how to harness the Web's potential as an instructional medium and help students develop fluency navigating and using the Web to pursue their interests. For students, the challenges lie in learning how to make sense of the vast amounts of information presented to them each time they access the Web and their LiteracyLink Web-based Home Space, which contains both the WES lessons and students' individual portfolio of responses to the lessons. Figure 2.1 is an overview snapshot of students' Home Space.[1] Figure 2.2 reflects the Home Space inside a specific unit of instruction.

[1] LiteracyLink screen designs and content in Figures 2.1–2.3 (c) National Center on Adult Literacy at the University of Pennsylvania/Graduate School of Education. Used with permission.

Figure 2.1: A Learner's Home Space Showing Available Functions

Figure 2.2: The Home Space Opened to Unit 12 of WES


LiteracyLink
HELP | ABOUT | SITEMAP | LOG IN | EXIT
LiteracyLink > Home Space > WES & GED > Communicating at Work > Unit 12
Workplace Essential Skills
Communicating at Work
Unit 12: Communicating with Customers
Objectives: - Understanding the importance of customer satisfaction
- Providing for customers' needs
- Working with difficult customers
Video: Video Program Twelve - "Communicating with Customers"
Workbook: Chapter Twelve (pages 71-88)
Internet Site: "The Right Answer"
Learning Activities
Title and link
Last saved
Video Activity 12 - Communicating in Different Settings
Internet Activity 12 - Handling Customers

For each online instructional unit, students are asked to work on a video activity and an Internet activity. In the video activity, they view a brief, QuickTime clip taken from the unit's 30-minute full video. A second set of activities links students to other sites, where they can practice specific skills, acquire additional content knowledge, and/or explore employment-related issues. Users then return to the LiteracyLink site to complete a final exercise based on the Internet activity. Students are given a dedicated Home Space in which to store their work. The Home Space is designed to structure the online learning process and help students keep track of their learning activities. In addition, the site offers students a personal journal space they can utilize for their own purposes.

In creating the Web component, WES designers sought to produce a simple interface that would be easily accessible to users new to the Internet and would not require use of complicated Web tools. In addition to a straightforward interface, designers worked to include simple, easy-to-follow instructions for each activity as well as readily accessible text storage spaces. Figure 2.3 shows an example of the Web screen that users see.

Figure 2.3: Sample Screens from a Workplace Essential Skills Video Activity

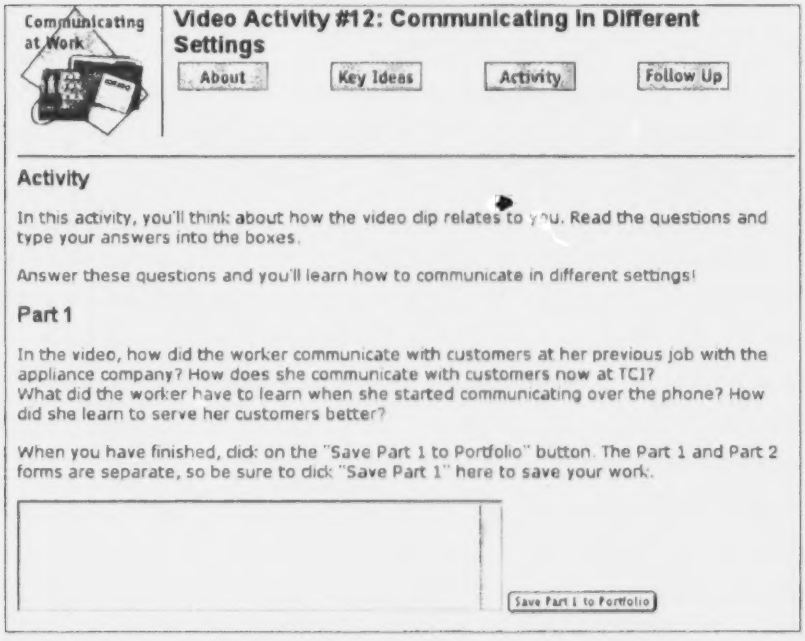
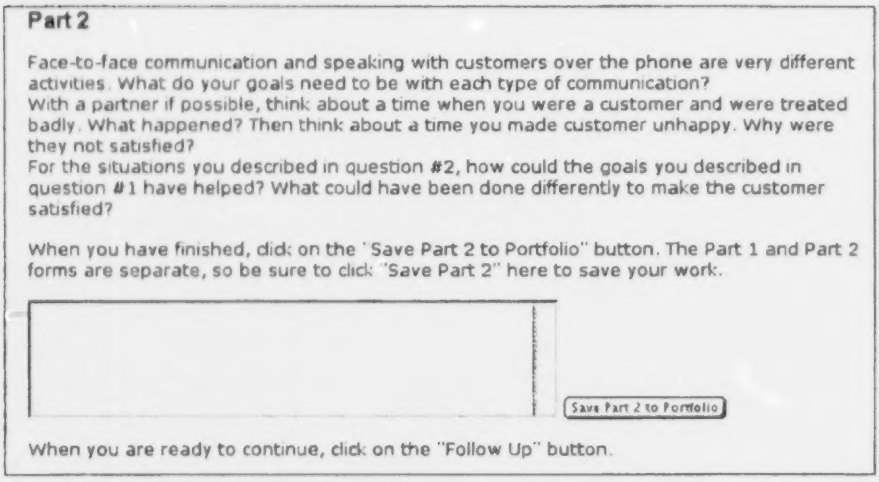

Communicating at Work
Video Activity #12: Communicating in Different Settings
About
Key Ideas
Activity
Follow Up
Activity
In this activity, you'll think about how the video clip relates to you. Read the questions and type your answers into the boxes.
Answer these questions and you'll learn how to communicate in different settings!
Part 1
In the video, how did the worker communicate with customers at her previous job with the appliance company? How does she communicate with customers now at TCI?
What did the worker have to learn when she started communicating over the phone? How did she learn to serve her customers better?
When you have finished, click on the "Save Part 1 to Portfolio" button. The Part 1 and Part 2 forms are separate, so be sure to click "Save Part 1" here to save your work.
Save Part 1 to Portfolio

Figure 2.3 Continued


Part 2
Face-to-face communication and speaking with customers over the phone are very different activities. What do your goals need to be with each type of communication?
With a partner if possible, think about a time when you were a customer and were treated badly. What happened? Then think about a time you made customer unhappy. Why were they not satisfied?
For the situations you described in question #2, how could the goals you described in question #1 have helped? What could have been done differently to make the customer satisfied?
When you have finished, click on the "Save Part 2 to Portfolio" button. The Part 1 and Part 2 forms are separate, so be sure to click "Save Part 2" here to save your work.
Save Part 2 to Portfolio
When you are ready to continue, click on the "Follow Up" button.

Round One: WES Pilot Test

The grant from Star Schools included a provision for both formative and summative studies. By 1998, LiteracyLink had completed several instructional units in the content areas of workplace communication and employment. A formative pilot test was developed to determine whether design elements needed adjustment and to assess the readiness of the field of adult education to adopt a multimedia product. PBS arranged with affiliate stations in five states (California, Iowa, Kentucky, Nevada, and New York) to solicit proposals from adult education agencies within their states to participate in the pilot test of the new WES materials. Sites were chosen based on several criteria, including agency claims of technological readiness to implement and support the multimedia systems in general and the Internet component in particular. Sites were awarded a yearly stipend to add the appropriate computer and Web infrastructures and to encourage WES usage. The 25 sites slated to participate in the pilot test were deemed "innovation sites" for their perceived readiness to use multimedia instruction and desire to be on the cutting edge of technology use in adult education.

In Fall 1998, LiteracyLink staff and researchers visited the innovation sites, providing product training and technological support in setting up computers, loading appropriate software, and ensuring Internet access for students. Teachers were also introduced to the research process, and a research coordinator was available to support data collection efforts. Each site was expected to have at least

one computer available for every two participants. Ten of the 25 innovation sites agreed to participate in the pilot test. Eighteen teachers volunteered or were recruited from these agencies to teach either the Employment or Written Communication units.

Computers and the Web

A number of the research questions in the pilot test related to the Web component including:

- Can learners access and navigate the online materials easily?
- Are online tasks easily understood and completed?
- Are teachers able to integrate the online activities into their teaching?
- Do learners value the online activities?
- Do reactions to the online component remain constant for the duration of the course?

In general, pilot study teachers and students had little or no prior experience with computers and the Internet. Such resources as on-site technical support and maintenance were not routinely available, and many sites struggled to establish reliable connectivity, log in to the LiteracyLink site, download and view video clips, and navigate both in the LiteracyLink Home Space and Internet sites outside the Home Space. Although agencies received training and regular technical support via an 800 number staffed by PBS, the support proved insufficient for many. In some instances, sites had ongoing difficulties connecting to the Internet and with connection speeds, purchasing and installing sound cards, downloading browser plug-ins (e.g., QuickTime), and troubleshooting computer- and Internet-related problems. The majority of teachers had limited knowledge of the Internet and did not know how to fix even minor problems that arose. For example, at one site, Web browsers were set to ask users whether they wanted to accept a "cookie" each time they advanced to a new screen. Teachers were unaware that they could easily turn off the warning and simply assumed this function was part of the way browsers work. Classes in this center fell behind schedule in online activities, and participants expressed frustration at having their work constantly interrupted by the warning messages. This example represents one of many such problems participants faced in accessing and using the LiteracyLink Web site during the pilot study.

Aside from these types of technical problems, teachers faced an even more challenging task—that of introducing their students to the world of computers and the Internet. More than 70% of learners participating in the pilot study said they had

either minimal or no exposure to computers and the Internet. Given the relative inexperience of many of the teachers as well, this problem had a major impact on how students and teachers used the online component of WES. The types of technology-related problems students experienced during the pilot study can be divided into three categories: lack of basic computer knowledge, motor skill problems, and Web navigation difficulties. Motor skill problems included "hand–eye coordination, facility using the mouse, hunt-and-peck typing methods, and scrolling" (Johnston & Young, 1999, p. 19). Navigation difficulties included "remembering where to go first (e.g., Home Space, lesson plans, portfolio), understanding that information exists beyond the first page of the screen, losing place when scrolling, and not knowing which button to click at the top of the page" (p. 19). Other difficulties involved paging back within and between Web sites, understanding the need to return to prior pages to complete other activities, and knowing what to do when links are "dead." Although some of these problems might be controlled through improved Web site design, others simply require instruction and practice to learn the conventions of the Web medium.

The design of the WES online lessons included activities both within the LiteracyLink Web site and on various external Web sites. Further problems arose when students exited the LiteracyLink Web site and began to engage in these other Internet site activities. Although the majority of students expressed great excitement at the prospect of learning how computers and the Web "work," few mastered many of the basic functions of computer and Web usage by the end of the study. In general, students and teachers spent far more time dealing with access and usage issues than with the instructional content. Students' portfolios reflected this. Few students engaged the online activities in depth, completing portfolio entries that were either extremely brief or contained content unrelated to the proposed activity. While this problem in part reflects many students' limited writing and typing skills, students' struggles with the Web component hindered additional progress and engagement with the online materials they might otherwise have made.

This combination of problems forced teachers and trainers to reexamine how this medium was being introduced to students. Before the online component could be used successfully as a content-based learning tool, teachers and students needed to learn basic computer skills and gain a conceptual understanding of how the Web functions. This finding clearly has implications for ODE programs. For students to receive the full benefit of the curriculum, they must be fluent in computer and Web navigation skills. Prior to enrolling in a distance education program that includes an online component, students should be screened for computer skills and provided with supplemental training on computer and Web usage.

Teacher Support

Another important issue involves teacher support. Although each of the 25 innovation sites was asked to identify teachers who could assume leadership roles in learning and teaching WES as well as in training other staff to use WES, only 10 sites were prepared to participate in the pilot. Agencies that chose not to participate cited scheduling difficulties, low recruitment numbers, problems with the technology, tight budgets, and overburdened staff as reasons for nonparticipation. Thus, despite LiteracyLink's best efforts, which included providing materials, teacher training, technical support, and a financial incentive, after two years these sites still were not ready to utilize the materials. In general, adult education agencies have little funding for teachers' professional development, and those sites that were able to participate were for the most part unable to provide adequate additional support for WES teachers. This left teachers on their own to learn a new curriculum, train students in computer and Web usage, teach content, and monitor both the media and student engagement with those media. In 1998, it was clear that adult educators were not yet ready to incorporate the Web in their instruction. Although familiarity with the Web is more commonplace today, this remains an issue for new program implementation. The pilot study suggests that professional development and ongoing support for distance education teachers are likely to be critical elements of successful distance education programs. Teachers must be thoroughly trained in both the content of the curriculum and the technology used to present it to students if they are to teach effectively. This is new territory for many teachers, and they need to be guided so that they in turn can successfully guide their students.

Round Two: The National Field Test

Taking lessons from the 1998 pilot study, LiteracyLink staff modified the Web interface to make it easier to navigate and propagated the new design throughout all 24 WES units. An online management system and a teachers' guide were completed in conjunction with the Web revisions in time for a national launch of WES in 1999. The 25 innovation sites each received the full set of WES materials. Sites were given a year to become acquainted with the materials. In August of 2000, they were invited to participate in an updated training offered by KET. In Fall 2000, a summative field test was conducted to assess the learning potential of WES. Innovation sites were invited to participate. The goals of the field test included:

- Measuring the impact of WES on learners who studied the materials intensively
- Determining current usage of WES in the innovation sites
- Assessing the potential for wide-scale adoption and utilization of WES

By the time of the field test, it was anticipated that innovation sites would have integrated the WES materials into their regular course offerings and that teachers would be comfortable using all three media with their students. Evaluators expected to be working with many of the same teachers who had participated in the 1998 pilot test. However, of the 18 teachers who participated in 1998, only 5 were available to take part in the field test training. Of those five, only two were able to recruit enough students to run classes. Thus, the majority of teachers who had participated in 1998 and gained some measure of experience using WES did not participate in 2000. In addition, only a small portion of the field test teachers had experience using WES materials prior to the KET training session in August 2000. This meant that both the researchers and sites were again starting from scratch.

A series of follow-up interviews and surveys was conducted in 2001 and 2002 to better understand the dynamics behind the inconsistent use of WES. As in earlier reports, the majority of respondents expressed positive opinions both of WES in general and of their experiences learning about the Web in particular. With such favorable reviews, questions again arose as to why the product was not widely used. Analyses revealed several key issues regarding curricular decision-making processes at different levels. These include (1) level of organizational planning, (i.e., the extent to which curriculum decisions are made at the agency vs. individual teacher level), (2) organizational buy-in, and (3) availability of computers connected to the Internet and technical support. A fourth issue concerned students' readiness to learn to use technology and respond to the learning tasks contained in online lessons.

Organizational Planning

When an agency considers utilizing new curricula, it must take several steps to ensure successful adoption. With a sophisticated product like WES, agency administrators and teachers must plan carefully how the materials will be used and how the organization will support teachers and students. The same is likely to be true for any ODE program. Few agencies in either the pilot study or national field test subscribed to any consistent organizational-level curricular planning. Although administrators and teachers alike said they believed the WES content and instructional delivery system would be of value to students, few had spent time exploring how the materials might fit into their center's regular course offerings. Thus, when the field tests were completed, most teachers returned to their previous schedules, using the curricula with which they were most experienced and comfortable. Although considered interesting, the WES materials were largely viewed in terms of a one-time teaching activity associated with helping its designers. And although some agency administrators noted their intent to eventually use the materials, few had developed a concrete plan for integrating WES into their center's offerings.

This finding points to the importance of organizational-level curricular planning as a vital component of adopting new materials or new technologies. Although LiteracyLink staff trained teachers and gained the cooperation of center administrators, they did not engage the agency staff at a planning level. To use a product like WES successfully, agencies need to examine their overall curricular offerings to see whether there is a need for the new product's instructional content, and if so, how the product might be integrated either as a supplement or as a whole curricular package. At several agencies, teachers and administrators noted they did not pursue the WES materials much beyond the national field test largely because their center's primary responsibility was teaching literacy skills related to the GED. The mission statements or mandates of many sites focus primarily on literacy skills development. And although WES teaches literacy skills, many teachers and administrators saw its employment-related content as belonging in a workforce development program. In addition, teachers recognized that most students who were reading at the levels appropriate for WES (5th to 8th grade) were more interested in academic skills and content related to the GED than in developing employment skills. As a result, many agencies simply put aside the WES materials, categorizing them as workplace literacy and, therefore, only peripherally relevant to students' GED preparation. With a more in-depth look at existing GED curricula, agencies might begin to see the connections between the literacy skills offered by WES and the workplace orientation of the new GED 2002. Similarly, it will be necessary to help agencies understand how ODE curricula can fit into their center's menu of offerings. [See Chapter 3 for an in-depth discussion of how Pennsylvania has engaged its distance pilot sites in extensive program planning.]

Availability of Technology and Technical Support

In 1998, only a small number of agencies, administrators, and teachers were adequately prepared to handle the technological demands of WES. Most required considerable help to set up their systems as well as support for ongoing maintenance and troubleshooting. In general, many agencies' and teachers' experience using computers focuses largely on teaching students basic keyboarding, specific software packages, and other computer skills—activities that do not require an Internet connection and do not require the kinds of problem-solving skills people need as they learn various features of the Internet, such as e-mail and Web browsers. Shifting to systematic uses of the Web and Web-based instruction requires both extensive training and ongoing technical support for the myriad of problems that can arise around connectivity, navigation of sites, and so forth. This is even more critical when students are learning at a distance without the availability of a teacher's immediate support.

Of equal importance in the WES national field test was the lack of technical support staff. In a field in which resources are often limited, even when centers have sufficient computers, funds may not be available to hire a full- or even part-time technical support person. In the case of WES, despite the availability of the PBS technical hotline, the lack of local support in many agencies proved a hindrance to instruction. Before products such as WES can be used successfully, the technology must be in place and functioning adequately. Otherwise, teachers and students new to the environment are likely to be discouraged about using the technology available to them. Although technology challenges were less evident in the 2000–2001 summative study compared with the 1998 pilot, the general lack of ongoing technical support meant that in addition to teaching, instructors were required to become Web and computer savvy to fix problems and help students understand how technology functions. Time spent addressing these issues impeded student progress on the content of the WES materials. Again, this suggests a need for teachers to be fully versed in the technologies they will use to teach and for appropriate technical support to be available to both teachers and students. Distance education programs should allow the teacher and student to focus on the course content rather than on the challenges of using the technology.

Student Readiness and Interest

In both the pilot and national field tests, students expressed great interest in learning how to use computers and access the Internet. In addition to developing job-search strategies and job skills, students cited learning the mysteries of computers and gaining access to the vast information available on the Internet as the most valued elements of their WES experience. Yet, despite having more experience with computers (80% reported occasional or frequent usage) and the Internet than their 1998 counterparts, few students in the national field test were sophisticated technology users. As noted earlier, to enable students to benefit from what WES and other ODE programs have to offer, students need to become comfortable computer and Internet users. Centers need to build in time for students and teachers to learn how to use computers and gain a conceptual understanding of how the Web functions before dealing with curricular content.

In addition, teachers need to spend time orienting students to the portfolio process and to those online activities that require written responses. In the national field test, students completed less than half of the online video and Internet activities in each strand, completing on average only 32% of video activities and 27% of Internet activities. Examination of the content of students' portfolio responses further indicates a lack of regular engagement with the content presented online. It is unknown the extent to which teachers addressed the portfolio component as part of their instructional process or whether they consistently accessed student portfolios

and responded to them. In ODE environments, teachers must first help students understand the purposes of the online activities and how to utilize portfolios as part of the learning experience. Teachers must then make certain they provide distance learners with consistent, timely feedback about online activities.

Lessons from the Field Tests

In considering the adoption of any new curricula, organizational staff must commit time at the beginning of the process to ensure that center staff use materials in a productive, beneficial, and regular manner. Further, agencies must determine their students' readiness to handle new technology and facilitate successful engagement with online activities. The WES studies described above reveal important issues agencies must consider to help teachers and administrators successfully implement and sustain usage of a program such as WES.

Agency-Level Preparation

There are three issues that are critical to successful implementation and sustained use of technology in adult education.

Program Planning

- Administrators and teachers should begin by examining the content of their existing programs as well as their educational mission. This provides agencies with a clear picture of what their center offers and how a new curriculum might support and/or expand those offerings.
- After examining existing courses, agencies can begin to see ways to integrate a new curriculum such as WES or new technologies such as online distance education into their regular program offerings. These might be used in conjunction with existing courses, as supplements, or as complete courses.
- In conjunction with a program plan as to how the new curriculum will be implemented, agencies need to train teachers extensively in the curriculum and its delivery systems.

Technology Implementation and Usage

- When considering the adoption of a curriculum with an Internet-based component, agencies should begin by examining the fit between the new curriculum's technology requirements and the agency's available technology. Any technology problems should be addressed prior to training teachers and students. This includes installing software, upgrading equipment, and testing to ensure the new curriculum can be readily accessed.

- When possible, agencies should designate a technical support person. In lieu of a technical support person, teachers should be provided with sufficient training opportunities to enable them to comfortably handle routine maintenance activities and problems that arise (e.g., downloading plug-in software, installing sound cards, changing program preferences).
- Additional training should help teachers understand the role technology can play in teaching and learning.

Students and the Web

- Prior to enrolling students in a program that includes online instruction, agencies should screen them to determine their computer and Web fluency levels.
- Before starting content instruction, students should be provided with basic skills training in computer and Internet use. Once students and teachers have had opportunities to practice using the technology available to them, they will be better prepared to engage the content provided through the various media.

Studies of WES reveal that introducing a multimedia product is complicated and requires addressing many of the issues in the field of adult education in general. Teacher training and professional development, support for technology, sufficient technology, and careful curricular planning at the organization level all play critical roles in determining how well the Web can be utilized as an instructional tool. The following chapter explores the Commonwealth of Pennsylvania's successful experimental efforts to put into place the necessary systems to support teaching WES at a Distance.

Chapter 3

Building System Capacity for Distance Education: An Experiment in Pennsylvania

The preceding chapter presented many of the challenges involved in implementing a new instructional program with an online component. It described a project that focused on diverse sites spread across five states. None of the sites had a strong support structure to help the site develop easy access to the Web or to help teachers integrate an online program such as Workplace Essential Skills into their teaching. This chapter presents a case study of a state that set about implementing online instruction with extensive planning and support. With this type of careful scaffolding, implementing distance education programs for adult basic learners has a greater likelihood of success. This chapter explores what has been learned from the Commonwealth of Pennsylvania's efforts to experiment with distance education for their adult basic education students. It presents lessons in both developing effective implementation strategies (e.g., recruiting students, supporting students at a distance) and creating an effective framework in which individual agencies can launch and maintain distance education programs.

Background

Only a small fraction of ABE students who need further education and training are served in traditional classrooms. Distance from class locations, work schedules, and the demands of daily life make it difficult for adults to attend regularly scheduled classes. Adult education providers are searching for alternate ways to reach the population in need of their services and distance education is an attractive option. The Pennsylvania Bureau of Adult Basic and Literacy Education (ABLE) funded an initiative to explore the potential of distance education to meet the needs of adult basic learners. The Bureau approached this project with the idea that distance education is radically different from classroom learning and that teachers and administrators would need to develop new skills, teaching methods, and mindsets to succeed. This initiative was designed to be experimental in nature, with the goal of learning what does and does not work in using distance education to reach the adult learner population. The Bureau was, in effect, inviting the pilot sites to join in an exploration of a largely uncharted approach to working with adult basic learners.

The Bureau developed a framework in which distance education could be investigated. They selected a single curriculum—WES from the PBS LiteracyLink project (described in Chapter 2)—and sent out a request for proposals (RFP) inviting interested agencies to respond. The Bureau selected a single curriculum to examine

best practices in implementing distance education for adult basic learners across sites. In addition, the Bureau contracted with the Tuscarora Intermediate Unit (TIU) to manage the program and provide training and ongoing support for all participating sites. This chapter describes the implementation of those experimental programs and identifies the best practices learned over the course of the project. It also examines how the elements of the structure the Bureau provided played a crucial role in the successful implementation of distance education programs.

The Experimental Framework

In Fall 2000, adult education facilities in Pennsylvania were invited to submit a proposal to be part of an experiment to see whether it was possible to deliver WES at a Distance to ABE students. The experiment would run from January to June of 2001. Twelve pilot sites were selected from those that applied. In January 2001, each site sent two teachers and an administrator to a two-day training session, during which they received instruction in general strategies for distance teaching and specific strategies for teaching WES. The TIU staff provided technical assistance for this effort, both for initial training of participants and for ongoing support.

Two of the authors[1] guided participants through a program planning process designed to help each site develop detailed plans for implementing WES in a distance modality. The planning process included an evaluation component designed to help project participants and the Bureau assess the strengths and weaknesses of different approaches.

The evaluation for the first year had three components: an initial planning document completed by each site, monthly conference calls among sites, and a self-analysis and revision of the initial planning document based on the experience of the previous five months.

The evaluation was designed to learn both what worked well and what did not. Both the positive and negative aspects were deemed important. Sites were encouraged to experiment and to share information about their frustrations and failures as well their successes (Johnston & Petty, 2001).

Following that initial phase, the original 12 sites were funded for another year of experimentation. They were charged with focusing on instructional issues and maintaining time logs that would contribute to estimating the level of effort involved in teaching adults at a distance. In fall 2001, eight more sites were selected in a competitive RFP process to make a pilot distance education program available in an increased number of the state's workforce regions. For 2001–2002, the two groups

[1] Jerome Johnston and Leslie Petty

of sites (original sites and new sites) were treated as separate experimental cohorts. The evaluation component for the new sites had the same three elements used with the original sites: the program plan, monthly conference calls, and a revised plan. Separate conference calls were held with each set of sites to allow them to focus on the different issues they were facing. All sites had an opportunity to interact and share information at a roundtable session held at the state's annual conference for adult educators. At the end of the second phase of participation, teachers and administrators in the original sites were asked to complete questionnaires focusing on key issues in distance education.

The Support Structure

The Bureau recognized that online learning differs from traditional classroom-based learning in significant ways and that adult educators would need time to learn how to do this successfully. All pilot program participants were skilled and experienced adult educators, but none had experience teaching ABE students at a distance. This was a learning experience for all involved. Accordingly, project staff created a structure that encouraged pilot sites to think creatively and attempt new approaches to reach and teach students using the online component of WES. The project staff provided a variety of supports, presented below, to help the sites succeed in that effort.

Financial Support

Recognizing that distance education was a new challenge for adult educators, the Bureau provided funding for all pilot sites. These funds, which were taken from their federal 231 money (Title II of the Workforce Investment Act), allowed each pilot to support two teachers on a part-time basis. They also provided some support for an administrator at each site and allowed the TIU staff to conduct training sessions and provide technical assistance for all participating sites. In addition, funds were provided for an outside evaluation of the program implementation process.

Time to Develop a Successful Program

The authors believe that distance education for adult basic learners is so different from traditional classroom programs that it is equivalent to "reinventing the school." It requires that agencies look for different students and find new ways to teach and interact with them. It clearly takes an extended effort as well as a period of "trial and error" to determine best practices. The Bureau's pilot program recognized that it would take time for agencies to learn what worked and what did not work. The Bureau provided an extended period of time for sites to develop their programs and included ongoing assessment of practices and feedback to the pilot sites during the experimental period.

Experimentation Is Encouraged

Again, recognizing that the pilot sites were in uncharted waters, the Bureau and TIU staff explicitly encouraged an experimental approach. Sites were asked to think creatively and try many approaches in an attempt to learn both what worked and what did not. However, because the agencies were accustomed to being held accountable for everything they did, it was at first difficult for them to accept the project's experimental nature. The agencies needed constant reminders of the experimental focus before they really began to see themselves as experimenters. Once this occurred, they were more comfortable taking risks and attempting implementation approaches they had not used previously. Without the sites fully accepting their role as experimenters, it is doubtful that this pilot program would have yielded so much useful information.

Freedom from Accountability

To help encourage experimentation, pilot sites were exempted from some of their usual accountability requirements. Sites were required to provide a count of the number of students their WES distance education programs served, but they did not need to provide evidence of educational gains or progress. This was important for several reasons: It further reinforced the pilot program's experimental nature, encouraged sites to actively try new approaches, and allowed both the sites and the state a longer period of time to deal with the unique set of issues related to assessing distance education students (the issue of assessing distance education students will be addressed briefly later in this chapter and in greater depth in a forthcoming position paper from Project IDEAL (www.projectideal.org/)).

Support for Pilot Sites

The Bureau provided support to the pilot sites as they created their distance education programs. This included technical support related to WES and teaching online, and support in forming a community of adult education distance educators. The former helped teachers and administrators deal with the practical issues involved in implementing their programs, such as using WES's online management system. The latter provided professional development for project staff, helped ease any sense of isolation in this new endeavor and offered a means by which sites could help each other solve problems. The two-day, face-to-face training session, monthly conference calls with the evaluation staff, site visits from the program coordinator's staff, and roundtable session held at the state's adult education conference were all components of the available ongoing support.

The usefulness of this support was evident in the way that the new sites were able to learn from the experience of the original sites. The lessons the original sites learned were shared with the new sites, thus sparing them the necessity of "reinventing the wheel." This foundation helped the new sites "get up to speed" more quickly and pointed to the value of experimentation and support.

These components—financial support, time to grow, encouragement of experimentation, freedom from accountability, and ongoing support—were built into the design of the statewide pilot program. They provided a climate in which adult educators felt comfortable taking risks, trying new approaches, and honestly evaluating their efforts. They were the foundation upon which the success of the programs rested.

With the foundation firmly in place, each pilot site implemented a distance education program they felt would best serve the needs of their particular community. The following section discusses some of the major things learned about teaching WES at a Distance.

Distance Enrollments

All pilot sites were able to implement a distance education project. At the end of their second year, the 12 original sites (each with two half-time distance teachers) reported enrolling between 25 and 153 students in WES at a Distance programs. The eight new sites enrolled between 12 and 60 students in their fledgling programs. This is very encouraging, as the sites represented a variety of agency types (e.g., intermediate units, literacy centers, libraries, etc.) as well as a cross-section of Pennsylvania's communities, from urban to rural. This suggests that not only does distance education have the potential to work for students in a variety of settings but also that diverse agencies can successfully implement these programs. Distance education programs can be adapted to meet the needs of the community they intend to serve. At the time this chapter was written, all 20 participating sites were offered the option of responding to a request for proposals that would provide funding for a third and final year of experimentation. After this, if distance education is determined to be viable for adult learners, it will be expected to function as a part of the regularly scheduled adult education course offerings.

Implementation Issues

In keeping with the experimental approach of the project, the pilot sites helped the authors identify a number of key issues in the implementation of any online program.

Recruitment

Identifying the Proper Target Audience

One of the first issues confronting agencies offering distance education programs was recruiting students to participate in their program. This differs from recruiting for traditional classroom-based programs in several ways. Probably the most important difference reflects the demands that traditional classroom programs and distance education place upon the learner. Because there is less direct interaction with the teacher, distance education requires that the student be able to function independently, be able to structure and organize time, and have a high level of self-motivation. In addition, for programs using the Web for instruction, students must also be comfortable working with the appropriate technology and have access to a computer. Many adult learners have difficulty in these areas, suggesting that distance education is not appropriate for all of them. The challenge, then, becomes identifying those adult learners for whom online instruction is likely to be successful.

At the start of the experiments, most sites attempted a broad, inclusive approach to recruiting students. Many opened the WES distance education program to any student who expressed interest, although a few required a minimum reading level to qualify. In an effort to follow the directive to recruit from populations they didn't typically serve, sites attempted to recruit from a variety of programs and agencies, including welfare-to-work programs, basic computer classes, housing authorities, domestic violence shelters, libraries, local businesses, senior citizens' centers, Even Start programs, union meetings, and the Commonwealth's one-stop centers (state agencies that combine a range of services including job training in one location). The wide range of experimentation was valuable, because it provided evidence on which approaches were more likely to yield students who would do well with online learning. The experiments in Pennsylvania suggest that students who were most successful at distance education shared many of the following characteristics:

- They were employed or actively seeking employment
- They had a clear goal for their participating in the program
- They read at a seventh grade level or higher
- They had the ability to organize their time and work independently
- They either had a computer at home or easy access to a computer at a place they felt comfortable
- They had computer skills that allowed them to navigate the WES site and the Internet

In contrast, most sites found that the distance education with WES tended to be less effective for students who possessed lower level reading skills and/or weak computer skills. In general, adults who were unemployed, who were required to take the class, or whose lives were highly unstructured tended to be poor candidates for independent learning. Career training programs, one-stop centers, local employers, and computer training classes all emerged as potentially strong sources for recruiting adult students to engage in online learning.

Building Partnerships with Other Agencies

All of the Pennsylvania sites went beyond their usual approaches to recruiting adult learners and tried to establish relationships with other agencies to reach populations they did not typically serve. This was a time-consuming process, and cultivating the relationships took a great deal of effort and care. However, once those relationships were in place, the pilot sites were often able to reach adults who would have been unlikely to enroll in their traditional classroom-based programs. Perseverance was a common attribute among the sites that established the strongest partnerships with other agencies. They made repeated attempts with each agency they targeted and approached several agencies until they found the right match.

Key to building a successful relationship with another agency was helping the agency understand the value of providing WES to their clients, employees, or students. It was critical that these agencies did not feel that the agency offering WES was a competitor, but rather that both agencies had different but important things to offer to clients, and by working together, everyone could benefit. The agency offering WES would gain students, and the cooperating agency or employer would gain an educational service for their clients or employees.

The Pennsylvania experience suggests that the following approaches may make collaborative efforts more likely to yield appropriate students for WES at a Distance:

- After receiving approval from the administration of the cooperating agency, work directly with the teachers, counselors, and other people who have direct contact with potential students. The better these people understand WES and how it might help their clients or students, the better recruiters they become.
- WES staff should maintain a regular (at least once a week) on-site presence at cooperating agencies. This allows the WES staff to answer questions, address potential problems, and increase awareness of WES at the cooperating agency.

Orientation

Orientation of adult learners—to the WES materials, the computer skills needed, and to working at a distance—is critical to their success in online distance education. But how do you orient students who are going to be working online? A key issue for the Pennsylvania sites was the idea that face-to-face orientations were, in some very basic way, incompatible with distance education. At the initial training session, sites were urged to reconsider this idea. Part of this process involved helping the sites understand the wide range of issues that a carefully planned orientation can address. The orientation introduces the student to the WES materials and to the concept of working online. In addition, an orientation allows the teacher to assess students to determine if this program is a good match for their interests and abilities, and to determine if students have the requisite reading and computer skills to succeed. Orientation can also be a time when the teacher can help students set goals for program participation and clarify course expectations. Study skills, strategies for working at a distance, and computer skills are other topics that can be covered in an orientation for distance education students. Finally, an orientation provides a way for teachers to take care of some of the "housekeeping" details, such as obtaining ways to contact the student (e.g., a home telephone number or e-mail address).

Based upon this understanding of what could be accomplished, most sites chose to conduct face-face orientations, either in small groups or with individual students. They reported that this personal contact allowed the teachers to forge a relationship with the students; most teachers felt that some type of personal relationship helped them to motivate students and keep them involved (motivating and retaining students will be discussed in more detail later). Not all teachers or programs felt that this face-to-face interaction was necessary, and a few developed online or telephone orientations that worked well for their students. Although the specifics of the orientations varied, most orientation programs shared several characteristics:

- Agencies were flexible in designing orientations, modifying them to meet individual students' needs. For example, some sites that typically offer mainly small group orientations decided to offer individual orientations if a student was unable to attend the group sessions.
- Teachers used the orientation process (whether face-to-face or at a distance) to build a relationship between the teacher and the student. Teachers who oriented their students at a distance reported that this was more difficult for them to do, but still felt it was an important goal for orientation.

- Many sites designed their orientation programs to include some assessment of student abilities. This helped the teacher provide instruction that was more closely matched to the student's needs. Assessment and screening of students to identify those for whom distance education is appropriate should be a component of every orientation session. As noted earlier, distance education is not suitable for all adult learners, and assessing a student—both formally and informally—during the orientation helps identify those students with the greatest chances of success.
- Several sites found that they needed to include a computer training session, in addition to the orientation, to ensure that their students had sufficient computer skills to learn online. Computer competence is clearly an area of concern for adult basic learners who hope to participate in online learning.

Student Support, Motivation, and Retention

A critical issue for any adult education program is the ability to keep students involved. This is difficult in a traditional classroom setting but becomes even more challenging when students are working at a distance. Students rely on teacher feedback about their work and on support from both the teacher and other students to help them succeed in the course work. In a classroom setting, this is usually accomplished as part of the ongoing face-to-face interaction between teacher and student and between student and student. How can this be accomplished when teaching at a distance? How does it differ from what teachers typically do in a traditional classroom? Is it possible to orchestrate online learning in a way that allows students to support each other? Teachers in the pilot sites wrestled with developing ways to provide their students with this type of social support.

Ironically, some of the difficulties in supporting and motivating students in distance education programs may stem from the same attributes of distance education that are attractive to students. Distance education appeals to many students because it removes some of the barriers that impede their attending a traditional classroom program at a regularly scheduled time. They may lack transportation to the class, have erratic work schedules, or have childcare problems that make attendance on a regular basis difficult, if not impossible. Distance education allows them a greater degree of control over the time and place in which they can further their education. However, it does so at a cost. It frequently removes many of the social supports that a classroom teacher and other students provide,

while at the same time requiring distance learners to structure their time and work independently. Thus, the teachers needed to develop new ways to motivate and support their online students.

Most teachers in the pilot study reported that it was more difficult to support and motivate their students in a distance education program than in a traditional classroom program, largely because of less frequent contact with the students and their inability to read students' nonverbal communication and body language. In addition, many teachers felt it was more difficult to build a personal rapport with students they rarely, if ever, saw in person; they felt that this lack of a personal relationship made it more challenging for them to find the best ways to motivate and support students. Despite these difficulties, teachers found effective ways to support their students.

Feedback on Students' Work

Providing feedback is a key element of supporting students. Teachers did this primarily through e-mail, using both the e-mail system built into the LiteracyLink WES online component and students' separate e-mail addresses, when available. Because the WES e-mail system has limitations, some teachers helped their students obtain a free email account on a service such as Hotmail. Teachers also telephoned students as an additional way of offering support.

Teachers found that students expected a prompt response to work they placed in their online portfolios. Most attempted to respond to students within 48 hours. The LiteracyLink online management system provides a way for a teacher to indicate if work has been *completed* (e.g., done to the teacher's satisfaction) or *attempted* (e.g., the student has done some work, but there is room for improvement), but it does not offer teachers a way to provide more detailed feedback. Realizing the importance of good, specific feedback, the teachers created their own methods. Some worked within the LiteracyLink online system and provided feedback by inserting their comments—in all capital letters or italics—within the students' text in their portfolio entry. Others moved outside the online management system and sent separate e-mails in which they responded to work in the students' online portfolios.

Supporting and Motivating Students

Supporting and motivating students working at a distance was challenging. In the absence of face-to-face interactions with students, teachers relied on electronic communications. Among the ways teachers encouraged and motivated their students were:

- Sending e-cards encouraging students and praising accomplishments
- Sending individual, rather than group emails to students, to make the messages more personal
- E-mailing encouragement to students on a regular basis
- Sending e-mails that asked questions and prompted students to think about their goals
- Offering assistance to students in finding information or sites on the Internet that could help their studies
- Telephoning students to have a synchronous conversation and learn more about the student's goals and concerns
- Telephoning students who had not been active online for a period of time to encourage them to stay with the program
- Providing certificates upon completion of a predetermined unit of work
- Offering drop-in times for students who wanted assistance from a teacher in person

All of these were methods of providing support from the teacher to the student. But student-to-student support is also an important aspect of learning for many adult students. Pilot sites were encouraged to experiment with two strategies for building student support groups, one electronic and one face-to-face. A few pilot sites experimented with establishing chat rooms for students, with very little success. It was difficult for a site to have a large enough concentration of students available at the same time (again, one of the attractions of distance education is the flexibility in terms of time that it provides the student). It may be more effective to establish asynchronous communication methods, so that time constraints are not an issue. Another possibility would be to establish a statewide rather than agency-by-agency student support network; a statewide network would have a larger base of students and allow students with similar interests to connect, regardless of physical location. Another possibility may be for students to have a partner with whom they meet regularly to discuss their online learning. At the one site that attempted this, only one pair was established, but they were able to provide strong support for each other to stay with the program. Given what is known about the social component of learning, the issue of student-to-student support for online students needs much more attention in the future.

Student Retention

The average number of students a teacher served was 47. About 40% of those (or 19 students) could be considered "retained." These are the students who stayed with the WES program long enough to meet their goals, complete one or more "strands" in the curriculum, or were still actively pursuing their learning goals when the school year ended. The data are shown in Table 3.1.

Table 3.1: Average Number of Students Served and Retained*

	N	Percent
Average Number of students served by each teacher	47	100%
Their experience . . .		
Enrolled in WES online; did little more	15	32%
Dropped out after completing a small amount of work	13	28%
Active; still pursuing their goal at the end of the project	9	19%
Completed their goal or one or more WES strands **	10	20%

* Average across 19 teachers. Data provided in May 2002 based on all students enrolled in the previous six months. ** A strand is a collection of 4–8 chapters in WES that comprise a topic area: employment, workplace communication, workplace reading, and workplace mathematics.

Retaining students is obviously a complex issue, involving student characteristics (e.g., motivation, readiness for the particular course), other demands on the student's life (e.g., family, work), external barriers to education (e.g., lack of computers at a convenient location) as well as factors related to the educational program itself and teacher characteristics. Many of these issues are beyond the teacher's control. Others, notably support and motivation, present challenges for the distance education teacher. At this time, data are insufficient to draw firm conclusions about student retention in online programs. It is worth noting that many students appear to "drop in" to WES—that is, they sign in and select a teacher but do little, if anything, more; this makes it difficult to get a true sense of student retention. To better understand retention of online students, it will be necessary to make a distinction between the student who simply is visiting or exploring the site and the student who has made a commitment to participate in the instructional program. Additionally, one of the attractive features of distance education—the fact that the student has more control over the time period in which he or she works—also makes it more difficult to determine if a student is still active. Teachers in the pilot sites suggest that their WES at a Distance students were more likely to have "gaps" in their course work patterns than were their classroom students, but note that these students were very likely to return to their studies when their life's circumstances

permitted. This suggests that it may be necessary to develop new ways to count active students that account for a potentially different pattern of learning and attendance.

Computer Access, Computer Literacy and Technical Support

Computer Access

An obvious concern for online learning is students' access to computers with Internet capabilities. Much has been written about the digital divide, and most of the students participating in the Pennsylvania pilot program did not have a computer in their home. Thus, finding locations where adult learners can easily and comfortably access computers is critical to the success of any online program for this population.

The pilot sites found that there were a variety of options to provide computer access to their students including local businesses (for their employees participating in the WES program), the state's one-stop centers, public schools, computer labs at the agency offering the course, local libraries, housing authorities, and other social service agencies. However, students were not always likely to use the available computers. For example, although most public libraries have computers available, many students did not select this option. There may be several reasons for this, including that adult learners frequently do not feel comfortable in libraries and the fact that many libraries place time limits on computer use that are incompatible with the amount of time a student needs to complete a WES lesson (although some sites negotiated with the libraries to modify the time limits for their students). Obviously, if students are to be successful in an online learning program, it is crucial that they have easy, reliable access to a computer.

Computer Literacy

Students need some basic computer and Internet use skills if they are to successfully study at a distance. However, students enrolling in the WES at a Distance pilot programs entered the program with varying levels of computer literacy. Some were already skilled computer users, but others needed to learn how to use a mouse and scroll down to read text. This means that it is necessary to assess students' computer skills and perhaps provide additional computer training before allowing them to begin to work online. Initially, many of the pilot sites resisted this idea. They were concerned that providing computer instruction in a face-to-face or classroom context would in some way diminish the distance element of the WES program. However, agencies have ways to ensure that a student has met the prerequisites for a given class, including using assessments and requiring certain courses as precursors to others. Just as an agency would not put a student with a 3rd grade reading level into a GED class, it makes no sense to put a student who lacks computer skills into an

online course. Thus, most of the pilot sites (except those whose students initially enrolled online and were clearly computer literate) did decide to look at students' computer skills before admitting them to the WES pilot program.

Most of the pilot sites conducting face-to-face orientations found it helpful to do an informal assessment of students' computer skills, often as part of helping them sign in as WES students. Many offered an additional computer session or sessions for students with weak computer skills, before the students began to work in WES. A few went further and decided to recruit from basic computer classes or to only enroll students with demonstrated computer literacy.

Even if students are comfortable using a computer and the Internet, it is still necessary to have some form of technical support available. Many of the sites provided print instructions, including screen shots, to guide the students through the WES site in a step-by-step fashion. A few of the agencies had technical support staff available to help students or teachers who needed additional assistance. In addition, teachers used the PBS LiteracyLink technical support and saw it as an excellent resource.

Reaching a New Population of Students

One reason distance education is attractive is that it offers the potential to reach students who might not be served in traditional classroom programs. To what degree did the WES at a Distance pilot programs attract new students? Preliminary data suggest that the WES at a Distance pilot programs were highly successful in reaching a new audience.

Participating sites were asked to estimate how many of their students enrolled in WES at a Distance probably would not have enrolled in regular classes at their center during that time. Ten of the 12 original sites estimated that 60% or more of their distance students would not have enrolled in a classroom program at their center. The new sites had lower estimates, but still saw about half of their students as uniquely distance students. Thus, distance education programs appear to have strong potential to tap into a pool of adults not currently served. This option may increase access to education for an underserved population; however more data are needed to confirm the findings of this pilot study.

Assessing Students in a Distance Education Program

Assessing adult learners studying at a distance presents many problems, ranging from the pragmatic (e.g., Can you get adult learners working at a distance to come to an adult education center for testing—especially post-testing?) to broader concerns (e.g., What is the appropriate test to use in assessing students studying a prepackaged

program, such as WES, which may not match the content of the major statewide assessments used for NRS accountability purposes?). These issues are beyond the scope of this chapter and are addressed in an assessment paper available from Project IDEAL. However, the issue of assessment was a concern to the Pennsylvania pilot sites. Although they had been freed from responsibility for any types of formal assessment during the pilot study, teachers and administrators were aware that this was an important issue. Several types of assessment are relevant to a distance education program: assessment for placement purposes, assessment to determine student progress, and assessment for accountability purposes. As part of the evaluation, information about how the pilot sites evaluated student progress was gathered from the new sites and from the teachers in the original sites. In addition, administrators in the original sites were asked to react to a series of possible mechanisms to use with adults studying at a distance.

How Sites Evaluated Student Progress

For most of the pilot sites, evaluating student progress was an ongoing and relatively informal process. Only a few sites used either a standardized test or the "Skills Preview" at the start of each WES workbook as a way to determine if the student was an appropriate candidate to study WES at a distance; none required their students to take any kind of post-test. Teachers responded to work that students placed in their online portfolios on a regular basis; this was their major method of determining if students had mastered the content. Many teachers, however, expressed frustration with being unable to better evaluate their students' progress. Some felt that online tests, or at least online versions of the print "Skills Preview" and "Skills Review" in the workbook, would be useful tools. (Although there are security issues related to online testing, teachers were more interested in testing to ascertain progress than to meet the demands of an accountability program.)

What Might Be Possible in Assessing Distance Education Students?

To begin to understand what types of assessment of student progress and accountability might be possible for WES online students, administrators from the original sites were asked how realistic/reasonable certain assessment protocols might be from both an agency and a student perspective. Although this is a very small sample, and the results must be interpreted cautiously, the results suggest that adult education providers are open to many possibilities for assessment but have some concerns about what might be acceptable to students interested in distance education.

Overall, the administrators felt that a variety of assessment requirements could work for their agencies. They felt that requiring teachers to maintain portfolios of students' work and requiring students to complete a specified number of assignments were realistic from both the agency's and student's perspective.

Administrators were less positive about options that require students to take pre- and post-tests on-site or to track the time they spend working. Hesitation about requiring on-site testing may reflect a concern that requiring students to come to a specific location seems contrary to the "learn any time, any place" goal of distance education. It may, however, be a slightly skewed view. Because the pilot sites were not expected to do any assessment as part of the experiment, it was not presented to the students as an integral part of the program. Just as an on-site orientation or providing computer training to students prior to allowing them to start an online learning program are not contrary to distance education, so, too, on-site assessment may have a place. An example of this is seen in states that offer online GED programs (e.g., Delaware). Their students are required to take pre- and post-tests in proctored locations, although the rest of their studying is done online at a time and place of their choosing. Until secure ways of assessing students online are developed, on-site assessments should be considered as an option.

The Time Element

There is a need to understand how much time it takes a teacher to deliver instruction at a distance and the time involved in running a distance education program to determine if it is a cost-effective approach for adult education. Teachers and administrators in the original sites kept time diaries for a 6.5 month period during their second year of implementation. These diaries asked them to record the amount of time they spent in specific tasks, such as recruiting students, running orientation programs, teaching students, and providing technical support. The data are shown in Table 3.2. The teachers averaged 25 hours per month in distance activities. (On average, each teacher worked with 22 students.) Only half of that time was spent teaching; the other half was devoted to the activities necessary to obtain distance students, such as planning new approaches to recruit and developing partnerships with other organizations. Eight percent of their time was spent orienting students to the requirements of distance education.

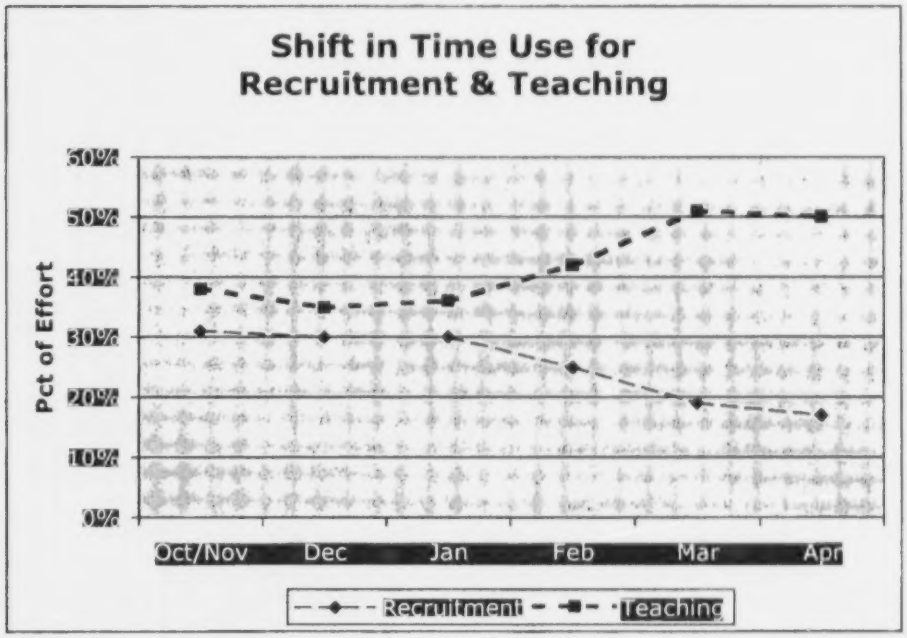
Table 3.2: Time Required to Deliver WES at a Distance

Paid Activities, Oct–April	Average Hours/Month	Percent
Planning	3.5	14%
Develop partnerships/recruit students	6.9	28%
Orient students	1.9	8%
Preparation for teaching and teaching	11.7	47%
Technical support for students	1.0	4%
Total	25.0	100%

NOTE: Based on monthly time diaries submitted by 22 teachers over 6.5 months.

It is interesting to note that there were changes in the categories of time usage over the 6.5 months of record keeping. In the early months, developing partnerships and recruiting students occupied about 30% of the teachers' time; this dropped to less than 20% for the last two months in which records were kept. At the same time, preparation for teaching and teaching activities increased over this same period: these activities accounted for slightly more than a third of the teachers' time from October through December and about half of the teachers' time in March and April. (See Figure 3.1) Thus, the type of activities in which teachers engaged was related to the maturity of the project. Initial project goals required that they establish ways of recruiting students, which for most teachers and agencies involved building partnerships with other organizations. Once this groundwork was in place and they had students in their virtual classrooms, the teachers were able to use more of their time for teaching-related tasks. However, it is interesting to note that some of the tasks occupying teachers' time are not tasks that are part of a typical adult education teacher's job description (e.g., recruiting students, developing partnerships with other organizations). This suggests that it may be necessary to redefine the teacher's role for teachers involved in distance education programs.

Figure 3.1: Shift in Time Use for Recruitment and Teaching



In the end-of-experiment questionnaire, teachers in the original sites were asked: You already have a good idea of how much time it takes you to teach a group of students in a traditional class. How much time does it take to teach the same number of students in a distance class? The choices for their response were "less time," "about the same," and "more time." They were also asked to explain their response. Half the teachers felt it takes more time to teach at a distance, and the others felt it took the same amount of time or less time than teaching in a traditional classroom.

When asked to explain their answers, teachers who indicated that it took more time than traditional classroom teaching focused primarily on the amount of time it took to respond to each student individually. Others felt it took more time because they were involved in recruiting students, which is not typically part of their classroom duties.

Teachers who felt it took less time or the same amount of time acknowledged the time it takes to respond to individual students but commented that this was offset by the reduced preparation time they needed because of the strength of the materials. Others commented that online learning was totally focused, with none of the distractions or wasted time common in a classroom. In addition, some of these teachers noted that the time it took decreased as they became more skilled in communicating with their students at a distance.

Lessons from the Pennsylvania Experiments

Although online instruction still presents many challenges, it appears to be a promising approach to reach adult learners who are not yet served by adult education programs. The Pennsylvania pilot study provides strong evidence that WES at a Distance can be used successfully with adult basic learners and that various types of adult education providers can offer this program as part of their offerings. It also provides some insights into the logistics of implementing a successful distance education program. The following lessons from the Pennsylvania experiments may be useful to others considering distance education programs to meet the needs of adult learners:

- Distance education differs so dramatically from traditional classroom teaching that it requires careful planning for implementation; it is not simply a matter of adding an additional classroom or a new section of an existing course. For distance education programs to succeed, they need extensive planning, support, and time to develop.

- The experimental approach used in Pennsylvania was a key component in the success of the distance learning efforts. It is important to recognize how novel this approach is in adult education. Teachers and administrators should be encouraged to think of creative approaches without fear of being viewed as a "failure." Only by examining what does not work, as well as what does work, can a full picture of effective implementation of distance education programs be obtained.

- Distance education can be adapted to meet the needs of the community being served. Thus, distance education may look different from one program to another because programs are designed to meet the needs of specific populations.

- Recruiting appropriate students for distance education is challenging. Distance education is not appropriate for all adult learners. Although the Pennsylvania experiments have provided some insights into the characteristics of a successful distance learner (e.g., employed or having a history of employment, reading at a level appropriate for the course material, having adequate computer skills, and so forth), much remains to be learned in this area. Moreover, because distance education may attract students not reached by existing classroom programs, it may be necessary to develop new recruiting approaches to reach these students.

- Orientation is a critical component of a successful distance education program. Students need to be oriented to the course materials, the requisite computer skills, and working at a distance. Although it is possible to do this strictly at a distance, face-to-face orientations appear more effective for most students. In addition to orienting students to the course, a face-to-face orientation provides a more personal relationship between the student and teacher.

- Teaching at a distance differs from classroom teaching; teachers need to develop new ways of providing feedback to students and supporting and motivating them. Most teachers indicated that this was more difficult to do at a distance than in the classroom. Timely feedback, frequent encouraging messages, and careful wording of e-mail responses all seem to be important in supporting students at a distance. This is another area in which an understanding of effective approaches is just developing; more research is clearly needed.

- Compared to classroom students, distance students may have different patterns of study (e.g., "attendance") as they take advantage of the flexible nature of online learning. Many teachers reported that their students were likely to "float" in and out of studying WES at a Distance. This suggests that it may be necessary to find new ways to "count" distance students, if this pattern holds true for students studying other curricula.

- Students need adequate computer skills to succeed. These should be assessed before students begin an online distance program; students who lack these skills should be directed to programs in which they can build the skills needed to study online at a distance. Even computer-literate students are likely to need some technical support; this needs to be part of any online distance education program.

- Many of the students in the Pennsylvania experiments would likely not have enrolled in traditional adult education classes. This indicates that distance education programs have strong potential to reach adults not currently served by existing programs.

There is still much to be learned about distance education for adult learners and many unanswered questions. The Pennsylvania experiment looked at the potential of using one specific curriculum to provide distance education for ABE students. However, the study provides reason for optimism about the potential of online instruction to reach adult learners who might not attend traditional classroom-based programs.

Chapter 4

View from Outside the United States: The Australian Experience

What conclusions can we draw about implementing online distance education in adult education programs by looking at the online instructional efforts of another country? Australia, through its federal and state planning for flexible learning and targeted funding, has strategically set out to be the international leader in this arena. Although flexible learning does not necessarily mean online delivery, use of the Internet has certainly been part of the instructional effort. Federal dollars have also been used for professional development, encouraging teachers to experiment and develop their capacity to help others with flexible learning. Although the government's evaluation efforts have focused primarily on policy strategies rather than on learner outcomes, and although many of these efforts are experimental and supplemental to the traditional classroom, the descriptions of practice can provide insights for the United States about implementing online distance education.

Australia's history of delivering educational services to remote locations results mostly from its geographic isolation. (However, this history did not include Internet and computer technology as the basis of instruction.) Although its landmass is roughly comparable to the United States, Australia has a population of under 20 million people, concentrated in urban centers along the coasts. Many of the people who live in Australia's remote interior experienced correspondence education delivered at state expense as children. Because of this history and its strong adult literacy programs, Australia appears a likely home to distance education for adult literacy programs delivered through the Internet. One of the authors[1] of this monograph explored this issue during a sabbatical leave from Penn State University (2000–2001), spending three months at The Flinders University Institute of International Education in Adelaide, South Australia, in addition to traveling within Australia.

Like the United States, Australia has both federal and state efforts in adult literacy. First, we will describe the federal efforts in distance education for adult education. The states described in this chapter—South Australia, Western Australia, Tasmania, and Victoria—are all strong in delivering distance education. (Other states may be equally strong, but the ones listed serve as examples of practice.) All have taken different approaches to online distance education for adult literacy programs. We will draw some lessons learned from these case studies to inform the efforts in the United States.

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[1] Eunice N. Askov

Federal Efforts in Australia

Australia is striving to become a global leader in applying new technologies to vocational and adult education and training through the Australian Flexible Learning Framework for the National VET (Vocational Education and Training) System 2000–2004. (See *Strategy 2002* (flexiblelearning.net.au) for more information.) Federally funded activities, most funded by the Australian National Training Authority, fall under each goal of the framework. To encourage independent access of services, learners are provided a national gateway to various educational and training programs on a Web site (www.edna.edu.au/index.html).

The first goal of the Australian Flexible Learning Framework calls for "creative, capable people." The first strategy in attaining that goal is professional development. As part of this strategy, several programs have been established with federal funds: LearnScope, which supports practitioners in developing the skills, knowledge, and attitudes required to apply new learning technologies for flexible learning and delivery; Virtual Learning Community, which encourages the continued development and integration of online learning communities across the VET sector for professional development for flexible learning; Flexible Learning Leaders, which provides professional development for the high-skill end of the flexible learning continuum of practitioners; and Flexways, which provides a Web-based resource to assist practitioners in identifying their professional development needs in learning technologies and flexible learning, developing a professional development plan, and accessing nationally developed resources.

These federal programs provide professional development not only for practitioners new to distance education, but also for experienced educators so that they can become Flexible Learning Leaders and mentors of others who are inexperienced. Teachers are urged to share what they have learned through the Virtual Learning Community program. Career development is encouraged through support for Flexways.

The federal funds are also used to encourage innovation in the LearnScope (learnscope.anta.gov.au) grants as a safe way to learn how to apply distance education to the literacy programs. LearnScope now has a strong presence throughout Australia and is enhancing the professional skills of both individual practitioners and their organizations. In 2000, 293 projects were established with more than 2,700 participants across all states/territories. In 2001, 337 projects were established with more than 3,000 participants across Australia. The authors are unaware of any similar programs for professional development at the federal or state level in the United States.

Other goals related to distance education for literacy programs concern the creation of a supportive technological infrastructure and world-class online content development and support services. Strategies include online national product development, evaluation, and further implementation, as well as access to and equity in online learning especially for targeted populations (Aboriginal and Torres Strait Islander learners, learners with disabilities, and learners with low literacy levels). Some national-level product development has occurred for literacy programs, as it has in the United States with the development of WES using Star Schools funds. (The emphasis in Australia has been on the vocational and training sector for national online product development.)

The development of toolboxes has also occurred with federal support. A toolbox is a collection of online training materials comprising learning activities, resources, and user guides to support delivery of competencies (including literacy) from endorsed training packages. By sponsoring the development of 41 toolboxes, the Australian Flexible Learning Framework has supported the implementation of 24 training packages and the development of 566 industry competencies. In addition, six online product projects for equity groups have been developed. More information is available at the toolbox Web site (www.flexiblelearning.net.au/toolbox/).

The Australian government has also funded research to increase the understanding of pedagogical, technical, and managerial aspects of flexible learning, including online learning. Use of a quality assurance framework including national protocols for nationally funded projects is supported at the federal level to develop and implement online programs. Research on distance education for literacy programs has received limited federal support in the United States. The issues of quality assurance and comparability to face-to-face programs have not been considered.

The Flexible Learning Web site (the.flexiblelearning.net.au/accessequity/content/research.asp) provides links to research concerning access to and equity of literacy services. Research papers have been developed to provide the theoretical background as well as report on a study conducted with targeted online learners. The extensive report prepared as part of Strategy 2000 (RO11R) suggests that online learning alone would be inappropriate for the special needs groups; these groups need human contact and support in their learning. These learners also will learn best if instruction is tailored to their learning styles and cultures rather than "one size fits all" online instruction. Guidelines for managers and practitioners, for Web accessibility, and for course development are also provided.

Perhaps most remarkable is not the amount of federal money devoted to these efforts but the process of continually updating annual strategic plans after evaluating and revising fundable activities. Australia has been very systematic in establishing goals and strategies, revised annually, to become a world leader in flexible learning, including online learning. The deliberate federal efforts moving Australia into a position of global leadership in flexible online learning includes adult education as well as vocational education and training programs. These targeted efforts appear to be unmatched in the United States.

Language Australia

The National Languages & Literacy Institute of Australia (languageaustralia.com.au/) located in Melbourne offers a variety of products and services that are of interest to adult literacy policymakers, researchers, and practitioners. Its Adult Education Resource and Information Service (ARIS), also funded by the Victorian government, is similar to Education Resources Information Center (ERIC) in the United States in identifying resources for practitioners.

ARIS has also created an online course for national distribution (funded by the Australian National Training Authority) entitled "Learn2Learn" (www.aris.com.au/l2l; note that the "l" is lower case in the Web address.) This multimedia course is written at three difficulty levels, with two sets of stories and sets of activities at each level. The goal is for the learner to apply learning that takes place in the stories to his/her own life, in an attempt to prepare the learner for further learning experiences using the online environment. A constructivist orientation underlies the product. Preparing for online learning by engaging in it is important as this enables students to judge whether or not they have the independence and self-direction needed for online learning.

State Efforts in Australia

As in the United States, states in Australia have been very active in providing funding to design online instruction for literacy instruction. This chapter considers four different models different Australian states have pursued. Most of the states use the TAFE (Technical and Further Education) institutes to develop and deliver online instruction in adult and vocational education.

South Australia

One of the leaders in online instruction in adult and vocational education and training is the TAFE South Australia (www.tafe.sa.edu.au). Literacy and English for speakers of other languages (ESOL) instruction are included as part of the online

offerings, in preparation for vocational education. Students have the option of studying entirely online through the TAFE South Australia located in Adelaide. However, most students take these courses in established centers in South Australia (SA), where a teacher in a local center performs all assessment and evaluation of a student's work, rather than doing this online. At least 15 literacy and numeracy instruction modules are offered online, primarily to fill gaps in specific skill areas rather than to offer entire courses online. (For example, see a sample of an online course in beginning writing: www.tafe.sa.edu.au/top/sample.htm)

TAFE SA uses the WebCT online learning management system to enable students to create home pages, post to bulletin boards, e-mail each other, and use chat rooms. WebCT also offers communication hubs in which teachers can create and store learning activities. Using these WebQuests, teachers can create a set of learning activities around various links to the World Wide Web. For example, one teacher created an activity called "A Driving Holiday to Coober Pedy" in which students had to read maps, plan activities, write letters, and estimate distance on their imaginary trip to a northern town in South Australia.

Another innovative example of a WebQuest that is a collaborative effort of the South Australian and Victorian ESOL teachers involves problem-based learning for intermediate language proficient classes. Students are challenged to solve the real problems of the polluted Murray River, which provides drinking water to four states including South Australia and Victoria. Students are provided with the basic information about the problems and issues as well as further information through the "Save the Murray" Web site. They are challenged to think of the problems as if they were farmers in Victoria (for the Victorian learners) or a community group in SA concerned about the predictions of undrinkable water in SA (for the SA learners). After studying the resources, they are asked to hold chat sessions, use e-mail, and write about the issues and possible solutions, using threaded discussions on bulletin boards. Using real-world problems as the basis for online written communication does not directly teach skills but instead uses a constructivist approach to engage students so that they practice literacy skills. This approach, which supplements classroom instruction, works well with learners at the intermediate level or higher rather than with beginning literacy or language learners.

TAFE SA also offers online education services (www.tafe.sa.edu.au/top/ettp) as support for teachers. One can learn how to use WebCT to establish online learning environments, develop online education programs and courseware, train staff in online development and delivery, and introduce students to online learning. Although the site is oriented to the use of WebCT as the learning management system, it would be useful to any teacher beginning online instruction.

Although most programs in South Australia use the WebCT learning management system for online courses and WebQuests, some classroom teachers use online resources and Hotmail e-mail accounts for student communication rather than instruction. E-mail communication is especially important for students who live in remote locations and are unable to attend class regularly.

Western Australia

The government of Western Australia (WA) established WestOne Services (www.westone.wa.gov.au) with the mission of enhancing adult and vocational education and training in this very large state. WestOne occupies a large office building in Perth with impressive television and videoconferencing studios in addition to Web authoring and printing capabilities. It also is responsible for business development, product development and distribution, and other services. The state's fiscal resources for course development are centralized at WestOne. In contrast to South Australia, WestOne offers no instruction directly. All instruction is offered through the state's TAFE institutes.

WestOne Online designs and delivers courses to the TAFE institutes throughout the state. Its centralized approach to development allows local input, as a TAFE institute can propose a course to be developed to WestOne. Often, a local college instructor develops the content in partnership with WestOne's technical experts, and a quality assurance process follows. The course then can be used—but not modified—by any TAFE institute in the state. WestOne holds the copyright on the materials. Although WebCT is frequently used, CD-ROMs and workbooks often supplement the online components.

One course entitled "Flying through the Web" is currently available under the General Curriculum Options 3 (part of the Certificates of General Education for Adults) that roughly corresponds to mid-level literacy skills. This course was developed first as part of a series of online literacy courses orienting mid-level literacy learners to Internet use. The home page pictures an Australian barbecue; learners click on various objects at the barbecue to take them into bulletin boards, e-mail, chat, and so forth. The "guide" is a talking parrot who provides navigational assistance. The next course, "Reading and Writing for Level 3," has been developed and will be offered shortly, as will a course in numeracy and mathematics at the same level. All are written in the WebCT learning management system.

The Western Australian experience suggests that course development occurs best in teams of practitioners and instructional designers/computer specialists. Practitioners offer the content expertise, and technology specialists have the expertise to design Web pages that are easy to read and appealing to the target audience. Selecting instruction in the use of the Web as the first course in a package makes sense to enable learners to engage in literacy content instruction.

Tasmania

Although it is an island and a small state in comparison to the others, Tasmania has attempted to overcome geographic isolation through the use of computers and the Internet for instruction. The Tasmanian Communities Online Project has established 64 Online Access Centres (OACs) outside the metropolitan Hobart area to provide access to computers and increase skills in using computer and Internet. The definition of an OAC includes the concept of community management offering access to multimedia computers and a variety of software, as well as e-mail and the Internet. A trained coordinator and community volunteers staff each OAC. Although the OACs currently do not include online literacy offerings, they provide the infrastructure for future online literacy efforts. The concept, as described below, may be useful in large, rural U.S. states.

In their first year of operation, OACs were funded to provide free, face-to-face training (75 hours) in computer operations and the Internet. For remote and isolated learners, the TAFE system is providing the training online, using the WebCT learning management system with a print manual. As the training is being given through the General Education program rather than the Information Technology (IT) program, this may represent a shift in thinking: Basic computer skills are now seen as a component of adult basic education rather than a part of formal IT training. However, people studying online at this point are still required to be able to read. Brown's survey (2002) of early users indicated that most had attained grade 9 or 10 of high school. Currently, the OAC Web site (www.tco.asn.au) reports that 41,500 people are studying computer applications at OACs, some online. The infrastructure appears to be in place for online literacy instruction beyond the basic level.

Tasmania is actively engaged in workplace literacy efforts in partnership with leading industries, such as Auspine Tasmania (forest products industry). As these industry sites are remote and isolated, literacy instruction is currently delivered using CD-ROMs, self-paced learner guides, and trainer guides for on-site learning support. At the moment, online instruction is being contemplated as part of a larger strategy to develop a learning organization with literacy learning at its core, but the workplace culture and lack of ready access to technology have been barriers. A case study by Wiles (2002) describes the approach that includes the use of the OACs as well as activities that break down barriers to using computers as a learning tool and serve as a precursor to introducing online learning. The OACs, with their training mission, offer more than the access to technology a public library provides in the United States.

Victoria

Victoria offers another model for developing online instruction for literacy learners. Rather than a single centralized effort as in Western Australia, Victoria has been home to several innovative efforts through various types of agencies. Rather than having online instruction centralized in the TAFE institutes, grassroots adult and community education (ACE) programs are also active providers of online literacy instruction. They are responsible for some of the creative online development that is based in constructivist learning theory. We describe the formal structures for online learning, followed by the more informal efforts of ACE providers. All receive support from the Victorian government.

State government funding has established TAFE frontiers (www.tafefrontiers.com.au/) to serve as a conduit for governmental funding and coordination among the various TAFE institutes, educational agencies such as adult and community education, training organizations, and the government. The mandate of the TAFE frontiers is to support learner-centered flexible delivery in adult and vocational education and training through the professional development and product development that they fund, including online and print resources. TAFE frontiers also funds research projects to guide future products and services. The authors do not know of a similar structure in any U.S. state that is specifically funded to coordinate course development, professional development, and research for online instruction.

One of the major recipients of the funding from the TAFE frontiers is the TAFE Virtual Campus (www.tafevc.com.au). The TAFE Virtual Campus is the delivery platform for many of the online courses the Victorian TAFE and ACE providers offer. Although the goal is a virtual campus offering an array of courses using the WebCT learning management system, some of the online components, such as bulletin boards, are also used in face-to-face classes. Although students can enroll directly in the TAFE Virtual Campus, many enter through a local TAFE institute or ACE provider. A sample course (www.tafevc.com.au/samplecourse.html) offered online through the TAFE Virtual Campus gives learners the opportunity to experience online learning. Using a mixture of funding, providers are developing online units that correspond to the Certificates of General Education for Adults.

Another major recipient of funding from the TAFE frontiers is the Adult Multicultural Education Services (AMES) in Victoria (www.ames.vic.edu.au/). AMES is known nationally for its offerings in language instruction and job services for immigrants to Australia. AMES delivers online courses, like a TAFE institute; provides support services for the learners of the TAFE Virtual Campus; and offers professional development, primarily for ESOL teachers. Among its various offerings, it also provides "Easy News" online nationally (by paid subscription)

at three levels of difficulty, combining current news stories and learning activities. Learners use these online activities primarily in classrooms, to become familiar with the Internet.

AMES Online also hosts the Virtual Independent Learning Centre (www.virtualilc.com/), which includes a database of learning tasks involving real Web sites created by teachers and organized by competency and topic for ESOL and literacy instruction. The database of learning activities is similar to that of the state of Wisconsin's Online Resource Center (www.wisc-online.com/). Activities are identified in the database by competency, enabling teachers to use activities developed by other practitioners. Teachers are also encouraged to submit learning activities to the database. In the AMES Online effort, however, most of the learning activities involve existing Web sites rather than teacher-developed activities posted online.

Aside from the TAFE Virtual Campus, which has the mandate to deliver online instruction across Victoria, several TAFE institutes are actively developing online instruction for adult literacy instruction. Although most of the efforts supplement classroom instruction, distance education students also use Web-based instruction. For example, Victoria University's TAFE institute developed an online course called "Learning to Learn" (www.staff.vu.edu.au/learning/), which prepares students for postsecondary studies or may be included as part of preparation for the Certificates of General Education for Adults. Less-formal efforts have also been taking place at Victoria University. Instructors have created an online course called "Stories Online" (ceds.vu.edu.au/stories/default.htm) to be used as a stand-alone course or as a supplement to face-to-face classes. Students can study four types of stories and also find questions posed before reading, links to the teacher's voice, learning activities, and discussion with others through e-mail (through a Hotmail or other account). A research report entitled *Going On-line: Use of On-line Technologies by Adult Literacy Teachers and Learners* (Wilson & Javed, 1998; www.staff.vu.edu.au/syed/alrnnv/lltt/report/index.html) provides support and resources for online efforts in Victoria.

Another TAFE institute, Northern Melbourne Institute of TAFE (NMIT), has been active in online development and delivery of literacy-related courses. The strategic plan of the Further Education Division indicated that staff wanted to explore the addition of online instruction to increase flexibility in learning. As a LearnScope project, a group of NMIT teachers adapted "Effective Writing Skills," an online module previously developed as part of the TAFE Virtual Campus, for five groups: Koorie (Aboriginal learners), deaf, women, industry, and ESOL clients. The purpose was to explore and improve online teaching for these special groups in need of literacy instruction. The teachers' commentaries (online.nmit.vic.edu.au/

learnscope/furthed/Web%20Pages/overview.htm) indicate that the experiences were positive and provided teachers with excellent opportunities to learn to identify the barriers to learning online and adapt instruction to the special needs of the target groups. This approach of adapting existing online instruction to the needs of special learners seems like an excellent idea for professional development and sensitization.

In addition to all these efforts, Victoria has established 10 learning networks of grassroots adult and community education (ACE) providers to support the online instructional activities of the TAFE Virtual Campus. Most of the learners work with an ACE provider rather than accessing online instruction directly through the TAFE Virtual Campus. An online teacher works with classes of students as well as students who are studying independently. ACE providers have developed some creative, less formal online instruction than is offered by the TAFE Virtual Campus.

ACE Online (Pobega & Russell, 1999; home.vicnet.net.au/~twt/acenet/courseoutline.html) provides an interesting discussion of the types of online instruction, based on the authors' experiences with issues and resources related to teaching literacy learners online. One of the most interesting ideas is the use of MOOs (Multi-user Object Oriented) in adult education classes. The MOO does not deliver literacy instruction but instead provides a tool enabling learners to work together and communicate in a game-like atmosphere, thereby decreasing geographic isolation by constructing a common "world" of objects, people, and rooms. (See home.vicnet.net.au/~acenet/community.htm to learn how it is being used in ACEnet, a learning network of nine ACE providers in Victoria.) Similarly, students and teachers from another ACE provider, the Carleton Adult Reading and Writing Program, are using MOOs (home.vicnet.net.au/~carlrw/online_learning.html) as part of online learning. Although MOOs originated in the United States, mostly in higher education, it is interesting to see how a few providers in Australia have adapted the concept to adult literacy learners.

Another learning network of adult and community education providers created an online program (www.chisholm.vic.edu.au/SWPLearnet/index.htm) to teach skills in the Certificates of General Education for Adults. It includes various types of activities, such as using a timetable, reading a newspaper story, creating a budget, writing sentences, and other functional activities, at several difficulty levels. Students access the activities by clicking on different rooms in a house. Another online resource (not a complete course) called "English at the Beach" (home.vicnet.net.au/~prace/beach/) was created by teachers in an adult and community education site to reinforce English literacy skills for intermediate nonnative speakers while also teaching about safety at the beach. "Dream Holiday" (home.vicnet.net.au/~flemrw/mainframe4.html), now also offered through the TAFE

Virtual Campus, teaches skills advanced ESOL students need to travel to various European countries on a hypothetical journey. These creative attempts at online instruction for literacy learners are all based on constructivist theory.

Of the four states described, Victoria clearly has the greatest variety of online literacy instructional efforts. Not only the TAFE institutes but also adult and community education providers are actively involved in developing and delivering online courses. It is noteworthy that the TAFE Virtual Campus offers its courses through both types of providers. Although the TAFE Virtual Campus is the major deliverer of online literacy education in the state, the Adult Multicultural Education Services, TAFE institutes, adult and community education providers, private organizations, and training organizations can undertake course development, all with state funding. TAFE frontiers was created to coordinate all state development and delivery efforts as well as offer professional development and research. In the United States, perhaps California might be comparable to Victoria in the amount and types of activities to promote online literacy learning.

Private Efforts

Australia, as a large English speaking country close to Asia, has marketed its English language instructional services to Asia for a number of years. With the capability of using the Internet, Australia now offers extensive language instruction online. The largest provider is the Australian Centre for Languages offering ACLEnglish (www.aclEnglish.com/). It serves online students not only in Asia, but also in Australia through the Adult Multicultural Education Services.

Conclusions from the Study of Australia

Because of Australia's commitment to flexible learning that includes online learning, federal and state resources have been directed toward making the country a world leader in this arena. The purpose is to offer options to people who need additional training, thereby expanding access to services. Literacy is considered a part of a more global effort to enhance vocational education and training because literacy is recognized as a prerequisite to and part of most training programs.

As discussed earlier in this chapter, most Australian states use the WebCT learning management system for course development and delivery. Although a site license for WebCT is expensive, it offers consistency to both teachers and learners. Its communication tools (i.e., e-mail, threaded discussions on bulletin boards, chat rooms) provide opportunities for students to construct their own knowledge from the instructional materials presented on the Web and to learn by interacting with others.

Additional materials, such as workbooks and CD-ROMs, can be easily integrated into the learning management system. Although the instructional portions of the courses may follow a transmission model of learning, the communication tools generally encourage teachers to follow constructivist and social learning philosophical models.

Especially interesting are WebQuests, instructional activities that teachers construct using existing Web sites. As part of the WebCT learning management system, teachers usually create WebQuests for face-to-face instruction and then may incorporate them in online courses. The WebQuests cited in this monograph are based on constructivist theory and problem-based learning. Their purpose is to encourage students to use language and literacy skills to solve real-world problems. As they do not require sophisticated programming skills, WebQuests offer teachers opportunities to develop learner-centered and relevant materials for their students. A similar tool would be very useful in the United States as professional development, to encourage teachers to create and use online instructional materials. By developing and using WebQuests, teachers can become comfortable with online instruction as well as problem-based learning. A starting point might be to incorporate easy-to-read Web sites (e.g., www.firstfind.info) into instruction and practice activities as professional development for teachers.

Teachers rather than literacy experts have taken the lead in developing Web-based instruction in Australia. Although most of this development supplements classroom instruction, it provides the opportunity for teachers to experiment with online instruction. Many of these "experiments" eventually are offered to distance education students. The support for teachers has come from federal and state funding. Federally funded LearnScope projects have been a primary vehicle for supporting teacher experimentation and professional development.

This chapter has tried to capture what is happening currently in four Australian states to suggest four possible models for institutionalizing online literacy programs for distance education at a state level in the United States. In South Australia, the development and delivery of online literacy courses is occurring through the state's primary TAFE institute in Adelaide. The courses may be accessed by students directly by distance education from the TAFE SA or through local TAFE institutes throughout the state. In contrast, Western Australia has funded one organization for development (WestOne) that does not deliver courses but instead works cooperatively with the TAFE institutes in the state to develop courses that those educational agencies subsequently deliver. Tasmania has a regionally distributed network of computer learning centers in rural areas, as well as a TAFE system that offers computer and Internet training online. Finally, Victoria

coordinates online literacy development and delivery through the TAFE frontiers and TAFE Virtual Campus with many other public and private entities involved in developing online courses.

State policymakers and practitioners in the United States need to think about a model, or hybrid of models, that might fit their states. Reflecting on the efforts of another country may help us think about what is happening in the United States. Development and delivery of online literacy instruction in the United States have been primarily through large multimedia products that are distributed nationally. Less emphasis has been placed on the professional development of teachers. Development in Australia, on the other hand, has been on a state-by-state basis. Although this approach may lead to "reinventing the wheel," it brings the development and delivery process closer to those who will use the online products. It also permits customization of the products to the unique needs of the state, perhaps making them more learner-centered. In the next chapter we discuss the issues that arise from our study of online literacy learning in the United States and Australia.

Chapter 5

Issues in Implementing Online Distance Education for Adult Learners

This monograph began by asking whether it is reasonable to consider using online distance education (ODE) to increase the reach of educational services for ABE, ASE/GED, and ESOL learners. In the first chapter, we asked whether ODE was being used in other educational sectors. We noted that higher education, professional education, and K–12 education had all expanded their reach using ODE, but that it had required a great deal of planning and organizational change to accommodate innovation within the traditional organizational structures of these sectors. We also reported that adult education leaders in at least 19 states were poised to launch ODE experiments to expand their reach.

In Chapter 2, we examined the experience of LiteracyLink—the first adult education curriculum series to build Web-based learning activities into their curriculum. The national field test of Workplace Essential Skills showed that neither teachers nor students were fully prepared to use the Web as a learning tool. Efficient and sustained use of Web-based learning activities requires certain conditions that do not currently exist in most adult education centers: easy access to the Internet, dependable technical support, teachers comfortable using the Internet in their instruction, and students ready to take advantage of it.

Pennsylvania made a commitment to providing these conditions to see whether this would be sufficient to make ODE viable with adult learners. Although the state is still in the midst of their experiments, its experience to date (Chapter 3) provides many lessons for adult educators interested in using ODE. The learners reached in the Pennsylvania experiments were largely those unlikely to enroll in existing classroom programs. Some adults are better suited to distance study than others. The most successful distance learners were those who were employed or had a history of employment, were reading at a level appropriate for the course material, and possessed adequate computer and Web browsing skills. The Pennsylvania pilot study provides strong evidence that at least WES at a Distance can be used successfully with adult basic learners, and that various types of adult education providers can offer WES as part of their offerings.

Another lesson is that a sound ODE program does not come easily. Pennsylvania educators required time to solve the many problems ODE posed. If adult educators are to develop the skills to offer ODE, they need an extended period of time to try various approaches and adapt their existing skills as classroom teachers

to ODE's unique requirements. Specifically, the Pennsylvania experience suggests that educators need time to figure out such issues as how to identify adults who are candidates for ODE, orient them to the unique demands of studying at a distance with online resources, and support learners to keep them committed to their studies.

In Chapter 4, we considered the various ways in which Australia has been using ODE for adult learners. ODE is an established and effective means for delivering instruction to those whose geographic or personal situation makes attending classroom-based programs difficult or impossible. Australia's success is associated with a different organizational approach than is taken in the United States, and the United States would do well to think about the merits of their approach. Reflecting on the efforts of another country may help us think about what is happening in the United States. Development and delivery of online literacy instruction in the United States have been primarily through large multimedia products that are distributed nationally. Less emphasis has been placed on the professional development of teachers. Development in Australia, on the other hand, has been on a state-by-state basis, with federal policies and funding supporting professional development for teachers and teacher leaders.

This chapter explores some of the key issues related to the implementation of online distance education programs for adult learners: models of implementation, planning, teaching at a distance, models for teaching and learning, and professional development. The chapter concludes by identifying a number of policy and research issues related to growth of ODE as a mode of instruction in adult education.

Key Issues in Implementing ODE Programs for Adult Learners

Models of Implementation

ODE refers to a variety of educational models, all using online resources to deliver education to students. It can be incorporated into a classroom program, used by students working at a distance with no face-to-face interaction with their teacher or fellow students, or used in a "hybrid" model combining distance and classroom-based modalities. The choice of model is likely to be based upon several factors, including the curriculum taught, students' needs and abilities, and the availability of computers and other resources. Whatever model is selected, careful and systematic planning is needed to make it successful. Key issues to be considered include how to provide students with access to materials, how much support students need to succeed, and how to provide feedback about students' work.

Planning for Implementation

Moore and Shin (2000) recommend that a program engage in distance education only if there is a unique market niche to be filled; programs should not rush to deliver distance education classes just because others are doing it. Appendix B contains questions that may be useful in exploring the possibility of adopting distance education as a means of expanding students' access to literacy services. These questions are also intended to help program administrators and instructors think about the issues related to offering instruction at a distance. If the market, resources, and staff capability warrant the effort, then using a planning model for distance education is the next step.

In states involved in Project IDEAL, the decision has been made at the state level to try distance methods to reach a new population of adult learners. Each state is seeking adult education providers to recruit and teach a population of adult learners at a distance. Planning is a critical component of each state's program, at both the state and individual site levels. Each participating site will develop a plan with detailed specifications in a number of areas, including approaches to identifying adults for the program, training them in the skills needed to work at a distance, familiarizing them with the selected product's learning activities, and providing them with instructional support for an extended time. Appendix C presents a list of 21 planning points each center in the Pennsylvania experiment used to organize its written plan for delivering WES at a Distance. The other Project IDEAL states are using the same planning tool this year.

Each Project IDEAL state has a separate set of planning issues. These revolve around licensing, infrastructure, training, and support. Most instructional products have fees associated with them, ranging from usage fees for video and online components to materials costs. Online delivery requires that learners and teachers have easy access to the Internet, and states often need to provide this access. As distance education is a new delivery strategy, states need to develop training plans and ongoing support to help teachers acquire the skills to effectively support learners in the product's use. Given the size and cost of the distance effort, a number of education units in the participating states have forged new alliances with other state agencies.

It is useful to consider separately the challenges posed by delivering instruction over the Internet. As reported in Chapter 2, many sites involved in the national field test of WES had difficulty with computer usage and Internet connections. Adult learners are rarely fluent in all the computer skills required to successfully navigate the products described in Appendix A. The same can be said for many adult education teachers. Teachers must feel comfortable with the

technology if they are going to help their students become comfortable with it. Most literacy programs offer computer courses as part of the broader set of offerings, but typically these courses focus on building skills to use office productivity programs (word processors, spreadsheets, etc.). With minor adjustments these same courses could provide the necessary prerequisite skills to function comfortably with the requirements of an online educational program. However it is provided, systematic training, such as that given in Western Australia in preparation for their ODE literacy sequence, must be available. It cannot be assumed that either teachers or students will be able to engage in distance education without preparation.

Teaching at a Distance

A key planning issue is the instructor's role in an ODE program. It is useful to begin by considering a teacher's many functions in the overall education of adult learners. These include conducting a learner needs assessment, developing a learning plan, orienting learners to the curriculum, instructing students, facilitating learning by motivating students, and certification. Teachers (or other staff associated with an institution) provide a variety of gatekeeping and support services that help learners analyze their educational goals and develop a plan to reach them. Teachers do this through interviews and diagnostic tests. They then develop or use instructional materials that will meet the student's instructional needs. In ODE, teachers must perform the same functions. In addition, they must teach students how to access the distance product and orient students to the selected instructional product's educational requirements.

In classroom instruction, the teacher, working with textbooks or other curricular materials, provides the content and tasks to help students learn the content or develop the necessary skills. The teacher provides corrective feedback about the tasks (homework), administers and corrects progress tests, and facilitates learning by enhancing students' motivation to stay focused on the learning tasks. The distance education products in widest use in the United States purport to fill some but not all of these instructional tasks. Also, products vary in whether they fill the purely instructional tasks. To deliver instruction at a distance, teachers need to analyze the product they plan to use and determine the functions that they need to fill. The greatest challenge is figuring out how to provide appropriate feedback to learners about their performance and creating ways to keep distant learners motivated enough to persist at the learning tasks. Continued contact—even electronic contact—with a human teacher is an essential component for most adult basic learners. Working with peers in group activities may also be important in providing motivation and support for learning. Thus, distance education teachers must assume some new roles in addition to the ones they would fill as classroom teachers.

Corbel (1999) identifies multiple roles for teachers in distance education as well as some of the skills necessary for online instructors. Although many of the online teaching skills are the same ones required for skillful classroom teaching, most teachers perform only a few of the roles that Corbel identifies. One of the major issues Corbel identified is the extent to which teachers should create online content as part of their role of distant educator. If teachers participate in content development, it is usually as part of a team. He points out that although teachers rarely modify existing products, they may build a lesson plan using an existing Web site. The primary role for teachers, according to Corbel, is to enhance learning by mediating between the learners and the content through the communication functions of the Internet. For example, through the course e-mail system, teachers might add further explanations of a Web activity contained in a distance education product.

Models for Teaching and Learning

Online distance education can be viewed as a continuum of instruction, ranging from high engagement in social interaction to individual, independent learning opportunities that may include some minimal electronically mediated instructor to learner and learner to learner interactions. The media involved may include the World Wide Web, e-mail, video, audio, computer software, print, or some combination of these media. Each option has different implications for teaching and learning. Although early attempts at distance education in higher education were built on the transmission model of correspondence study in which knowledge is imparted from the professor to the students who are at a distance, the constructivist learning theory has recently become entwined with distance learning (Burge, 1988). This reflects the advent of two-way learning technologies, such as audio- and video-conferencing and Internet technology. Although these newer technologies have the potential for social learning leading to the development of higher order thinking and learning, little is known about effective teaching and learning practices using ODE with adult basic learners. Future research should explore these teaching and learning issues in depth.

In education it is widely accepted that an important aspect of one's knowledge is socially constructed. Although learners derive knowledge from reading, seeing, and hearing the expertise presented in textbooks, videos, and audiotapes, deep understanding results when students construct their own understanding of that information. An important ingredient in constructing that knowledge derives from interacting with classmates about the material. To support social learning among distant learners requires careful design of learning exchanges—both teacher to student and student to student interaction. Internet tools can support this type of interaction, but it does not come automatically (Daley et al., 2001). Daley and her colleagues recommend that instructors take the time to develop the online learning climate to promote social learning. This might involve

establishing work groups among students studying the same or similar material, encouraging e-mail exchanges among students, and making frequent posts to a class bulletin board.

In fact, a key role for an online instructor in a constructivist learning environment is to act as a facilitator to carefully monitor and support online interactions (Burge, 1994). A skilled instructor is necessary to ensure that the online groups work together collaboratively as intended (Gunawardena & Zittle, 1997). It takes a considerable amount of time to create this type of environment, even when working in a classroom. Working at a distance makes this a greater challenge, and this seems to be one of the weakest components of many of the distance learning programs for adult learners. The degree to which online learning communities are a critical component of an online educational program varies depending upon the instructional goals and program being used. Nevertheless, online learning communities can be tremendously motivating to students. Usually these communities form around learning projects, with the teacher acting as facilitator. Other students can serve as a support group in the learning process.

Policy Issues

Policy can facilitate the growth of distance education in a number of areas. These include expanding professional development opportunities, promoting the harnessing of new technologies, and providing support for experimentation.

Professional Development

This monograph has stressed that online distance education differs dramatically from traditional classroom education and that teachers need to develop new skills to teach effectively in an online distance education program. They will need to both rethink their role as a teacher and learn the skills for teaching and supporting students working at a distance. To meet these goals requires professional development that in turn requires investments at the state or federal level. Fortunately, this appears to be happening. The Department of Education recently funded TECH21 at the University of Pennsylvania, and its major goal is to help adult educators learn how to use technology to improve instruction. Similarly, Project IDEAL at the University of Michigan is funded by a combination of state and federal sources.

It is worth noting how ODE can itself be used to provide professional development. To help states prepare their distance educators, Project IDEAL has developed an ODE training program. It includes an online course and a virtual support mechanism. The program has three key components. First, it requires educators to themselves be distant learners and experience firsthand what it is like to interact with an instructor and "classmates" in a faceless environment. Second, the

online course extends the typical one- to two-day face-to-face training session to a length (typically two to four hours a week over a five- to seven-week period) more suitable to an extended examination of the challenges of recruitment, orientation, teaching, and assessment. The course is built around the *Handbook of Distance Education for Adult Learners* (Petty & Johnston, in press), which will be revised annually to reflect an ever-expanding collection of promising practices. Third, when the course ends, the online site is converted to a virtual support space, providing a place for distant educators—themselves living at a distance from one another—to develop a repertoire of promising practices. The virtual support space provides a place to share documents (e.g., sample recruitment fliers, agendas for orientation programs, articles on teaching) and discuss ongoing challenges, such as recruitment, teaching, and assessment. The underlying idea is to provide distance educators with a continuous support mechanism that they can use to refine their practice.

Emerging Technologies

In recent years, new technologies have changed what is possible in ODE for adult learners. In the mid 1990s, ODE was almost exclusively text-based. In the brief period of five years audio and video streaming technology matured, and Internet access speeds increased dramatically. The developers of video streaming technologies were not interested in adult education, but curriculum developers with an interest in adult education saw the value of the technologies for engaging learners and tapping into their familiarity with video media. Developers at PBS and NCAL incorporated QuickTime video clips into every online lesson in WES and GED Connection. OTAN saw the same potential for ESOL instruction and built several hours of streaming into the English for All series.

Other technologies like video streaming will appear, and developers with an interest in adult education need to be sensitive to the potential each poses to enhance adults' learning experience. Hand-held computer devices such as PDAs (personal digital assistants) offer the possibility of easy access to compensatory strategies, such as pronouncing an unknown word. A PDA's small size and portability permit flexibility in when and where instruction could be received. Might there be cost-effective ways to harness PDAs to the needs of adult learners?

Another emerging technology is Chatterbots—computer representations of human beings that use artificial intelligence (www.botknowledge.com). They look, speak, and move just like a human. By retrieving previously stored information and using natural language, they can answer questions, tutor a learner, and even individualize instruction based on the learner's previous responses. Chatterbots can open Web pages, show PowerPoint slides and pictures, and do many of an instructor's tasks. The Chatterbot technology has enormous possibilities for relieving the workload of an ODE instructor.

Do technologies such as PDAs and Chatterbots have a place in adult education? It is not possible to respond to this question simply or cheaply. We note that video streaming is now a key component of at least three adult education products of some importance to the field. This happened because imaginative developers at NCAL, PBS, and OTAN qualified for federal grants designed to spur technological innovation in adult education. Adapting newer technologies to the needs of adult education requires similar underwriting.

Experimentation and Accountability

Policy that supports practice is crucial. ODE for adult learners must be seen as a reinvention of schooling, not as a simple addition to a literacy center's curricular offerings. While practitioners are learning to become distance educators, policymakers should be open to the challenges this new approach poses and allow some flexibility in program accountability. For example, in the initial years of the Pennsylvania experiment, centers were allowed to exclude students enrolled in their distance education program from their annual report. This flexibility permitted teachers and administrators to experiment with different recruitment and teaching strategies without worrying that a strategy later judged to be weak would count in the center's annual evaluation. The Pennsylvania experiment also underscores the need to provide extended professional development opportunities for teachers who want to become distance educators. At this point, teachers need the opportunity to try different strategies and evaluate which ones work best. Being part of a collaborative group of professionals discovering and sharing best practices is the most promising approach to professional development in this arena.

Distance education is expensive, especially in the experimentation phase. Local centers do not have the resources to underwrite these experiments. State and federal dollars may need to be invested in building the infrastructure and ensuring that the experiments are sufficiently well designed to yield good data on best practices. If policymakers at the state and federal levels believe that distance education is a worthwhile experiment, then appropriate funding needs to follow. Well-designed experiments can in turn inform policymakers about the feasibility of using ODE, its cost, and best practices.

Control and Distribution of ODE

A number of program design and delivery issues need examination. They fall in the category of state and federal policy regarding development and delivery of distance education programming.

Development of Instructional Materials

Are the needs of adult education best met by the development of nationally available ODE products? Should these products have as many built-in instructional components as possible, or should they require instructor mediation to make them effective? Western Australia has one centralized agency for development, for example, although any of the technical colleges in the state may deliver its distance education courses at no cost. But Australia as a whole has devoted its largest investments to training practitioners to lead various distance education efforts, relying on practitioner leaders to create the products tailored to the students they serve. It is not clear whether this approach has created the most effective instructional products for all learners. Perhaps future research could help answer this question.

In the United States, considerable investment—both public and private—has been made in the creation of large-scale ODE products, such as those enumerated in Appendix A. These products vary in the degree to which they call for teacher intervention, from the drill-and-practice of SkillsTutor to the more teacher-guided design of GED Connection. They are all highly polished products that teachers can easily learn to help adults use. But their effectiveness as instructional tools needs testing as well.

Distribution of Distance Instruction

How many literacy centers in a state should be involved in the distribution of distance education? Perhaps not all of them. Those with the capability and training could serve a state's distance education needs regardless of the student's place of residency. As distance programs become institutionalized, it is possible that learner assessment could occur at a center close to the learner, while distance instruction is delivered by only a few centers in the state. Policy guidelines would need to reward both centers for their work with the student. Policy should encourage centers to work cooperatively, and personnel in all centers in a state should be aware of the efforts of those involved in distance education. Kentucky and Illinois have taken a very centralized approach to the distribution of ODE, whereas other states are taking a more decentralized approach, giving local literacy centers latitude in selecting and implementing distance products. Examination of the experience of these states in a few years could inform policy.

Research Issues

Research and evaluation need to accompany experiments in practice and policymaking. Quantitative studies of recruitment, retention, and gains are needed, as is in-depth qualitative research about the teaching and learning environment. Two areas of effort stand out: research on planning and implementation of distance learning programs for adult learners and research on teaching and learning online.

Planning and Implementation

From the programmatic perspective, research is needed to identify the best practices for implementing online distance learning programs. For example, research is needed to identify the most suitable participants in distance education and the most effective means of recruiting them to the program. Focus groups and in-depth interviews with current program participants could reveal why they have chosen this mode of study and what motivates them to continue. Research into the program linkages with social service agencies would reveal helpful partnerships for referral of students to online distance education programs. Similarly, research is needed to understand effective practices in designing orientation programs for online programs, providing feedback and support to students working at a distance, and retaining students in distance education programs.

Policy research is also needed in the planning and implementation of distance education programs. Investigation into the role that government (federal and state) can play in jumpstarting online instruction would be useful. Another issue is how program accountability should be handled after an experimental period is completed.

Teaching and Learning Online

This monograph has demonstrated that teaching and learning online differ from the same activities in a classroom setting. However, little is known about effective online teaching for ABE learners. Extensive efforts are needed to identify practices that are most effective for online distance education with adult learners. Best practices may vary, depending upon the distance education product being used and the instructional method employed. Thus, research should examine teaching and learning in a variety of delivery models using different curricular products. Adult educators need to learn more about effective methods of instructing, motivating, and supporting adult students working at a distance. They also need to learn more about how to best use existing and emerging technologies and products to meet student needs. In reinventing the school, educators need to document and examine implementation to develop an understanding of the best practices for online distance teaching.

A Final Note

Promising evidence exists that online distance education can expand access to educational services to those who would not be able to engage in classroom-based instruction. Programs can broaden their scope to serve clients who traditionally do not seek classroom instruction. Distance education also offers the opportunity to reinvent adult education in positive ways by rethinking the teaching and learning process. As stated earlier, engagement in distance education is not simply a matter of selecting a product with online components for delivery.

The issues are complex in that they involve decision-making for practitioners, policymakers, and researchers. It is important that these three groups work together and inform each other of findings and discoveries about what works. A top-down approach to decision-making simply does not work in designing and implementing online distance education programs. All stakeholders need to be involved. Student input, including various groups of constituencies, must also be sought so that effective programs that meet their needs can be designed. In conclusion, a new type of thinking about teaching and learning must be adopted if practitioners and policymakers accept the challenge of ODE in adult education programs. This vision for online distance education promises to open new possibilities for many adults not now being reached by classroom programs.

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Appendix A

Online Distance Products for Adult Education

The Internet—and the Web in particular—is playing a growing role in the delivery of instruction for adult basic education students. This appendix provides brief descriptions of a sample of adult education curricula that include an online component and that are being used in ODE programs. How well these programs utilize Web capabilities is not considered, nor is the quality of instructional design. Rather, this appendix is intended to introduce readers to the types of available ODE curricular packages.

A growing number of product developers are either modifying existing programs or developing new products that utilize the Internet as part or all of the instructional delivery systems. These programs are designed for ABE, GED, and ESOL students and include courses on a wide range of academic, social, and work-related topics. Computer-based educational products originally available only on closed systems or CD-ROM (e.g., Aztec, PLATO, and SkillsTutor) are now being offered online. Two newly released multimedia products were built with Web-based learning units having equal weight with print and video (Workplace Essential Skills and GED Connection). All five products were designed primarily for use in a classroom setting, but each is suitable for distance application as well. The ESOL product, English for All, also combines video, print, and online activities, with video content offered online as well as through traditional videotape. Other ABE products, such as TV411, have recently added Web components to supplement their video and print materials. Another distinct group of product developers has focused on developing online materials for the more traditional high school student. These products were designed exclusively for ODE, are credit and fee based, and are marketed to individuals rather than agencies. All instruction is provided by the product developer, and the curricula are not available for agency purchase. These programs include, for example, Nebraska Independent Study High School (ISHS) and Virtual High School, which offer college preparation classes, and the OnLine Training Institute, which provides GED preparation classes.

The products described here can be divided into three categories: (1) independent skills development products delivered via software (CD-ROM/diskette) or through the Web—Aztec, PLATO, and SkillsTutor; (2) products that include an online component as part of a multimedia instructional delivery system—English for All, GED Connection, and Workplace Essential Skills; and, (3) products that include an online component and that are mediated by instructional staff provided by the developer—Nebraska Independent Study High School and OnLine Training Institute.

Products can also be categorized according to their expected levels of teacher mediation. Products such as SkillsTutor and PLATO are designed to deliver all instruction via the program. Program materials can be used either as stand-alone courses or as supplements to other curricula. After students complete the software's diagnostic instruments, the program recommends lessons and/or courses of study. Once students learn how to log in and then access and complete recommended assignments, they can work largely independently, relying on the software to direct their learning activities. Throughout lessons, these products provide immediate feedback on student work, using student responses to various items and assessments to determine appropriate additional items or activities. Levels of interactivity, or software mediation, vary among these products. Some provide simple, one-line textual hints when students answer items incorrectly, and others provide graphic representations or other visual aids to facilitate student learning. All offer optional audio components to provide additional support for lower-level ABE or ESOL learners. This form of software-directed study does not, however, preclude teacher mediation. In lieu of or in addition to recommendations by the software, teachers may opt to use state- or center-mandated diagnostics to determine which courses to assign individual students. Teachers also have the option of compiling activities, lessons, or courses to create individual student or class syllabi.

GED Connection (GEDC) and Workplace Essential Skills (WES) are curricular packages designed to be teacher mediated and used in a classroom setting, but with careful planning, both are viable for distance education. Centers may teach the curricula, or students may request to be assigned to one of LiteracyLink's cadre of distance instructors. GEDC and WES are multimedia products that include video, print, and online components. Developers recommend each component be utilized according to specific guidelines that emphasize the medium's instructional strengths. The videos, for example, present scenarios and content-related issues that are intended to serve as vehicles for discussion. Teachers are encouraged to pause the videos between topics to encourage class discussion and reflection. Unlike software-mediated programs, GEDC and WES also contain an online component that is intended to be teacher facilitated. Although students are able to complete online activities independently, the LiteracyLink Web site does not provide feedback on student work. Rather, teachers access student portfolios to respond to student writing. Thus, although students may choose to complete all of the activities independently, the products are most effective when facilitated by an instructor.

The Nebraska Independent Study High School and the OnLine Training Institute are examples of online programs that require teacher mediation to deliver instruction. Each was designed for distance delivery with the aid of instructors provided by the developers. In contrast to curricular packages by developers such as PLATO and LiteracyLink, these developers do not sell their packages for other

instructors to teach. The developers provide all instruction and assessment (with the exception of the GED test, which is an end goal of the OnLine Training Institute's preparation courses). Courses are designed for learners who have financial resources to commit to their learning and who have the ability to work independently. Course work and learning expectations for students are similar to those of traditional high school curricula that prepare students for college. These particular packages are less well suited to the typical adult education student, although adult learners are not precluded from using them.

Each of the products is described in detail below in terms of its delivery method, target audience and instructional content, diagnostics, assessments, and correlation to various standardized assessments and standards.

Skills Development Products Delivered Via CD-ROM or the Web

Aztec Learning Systems

Developer/Publisher	Aztec Software Associates
Address	66 Morris Avenue, Suite 2C, Springfield, NJ, 07081
Phone	(800) 273-0033 or (973) 258-0011
Email	information@aztecsoftware.com
Web address	www.aztecsoftware.com
Target Audience(s)	ABE; pre-GED, GED, and Workforce Training
Subject Content	Language arts (including reading, writing, grammar, spelling, and punctuation), basic math, algebra, and geometry, critical thinking skills, social studies, science, and spatial relations; business writing, clerical skills, and document formatting; medical vocabulary
Delivery Methods	Web, CD-ROM, diskette
Diagnostics/Assessments	Pre- and post-testing
Correlations	Modules are competency-based and have been correlated with the GED 2002, TABE, ACT Work Keys, CASAS, and NY Learning Standards

Product Description and Key Features

Aztec is an interactive, competency-based skills development program that offers instruction in ABE, pre-GED, and some GED-related content areas as well as in basic office skills. Each module is comprised of a series of lessons that include pre- and post-testing, instructional content, individual skills practice and software-generated feedback. Hours needed to complete individual modules are estimated

by the developer to range from 2 to 22 with the majority of modules requiring between two and eight hours. Module contents are based on workplace competencies associated with such assessments as the ACT Work Keys and the CASAS.

Aztec's ABE and pre-GED modules focus on developing students' skills in the areas of basic and intermediate language arts and math. ABE materials begin at the 2nd grade reading level and include lessons with progressively more difficult content. A minimum reading level is recommended for each module. Additional software features include an optional audio component and games-based formatting for practice items.

Aztec's workforce training modules provide ABE-level students with instruction and practice in basic office skills including message taking, filing, proofreading documents, and formatting different types of business-related texts (e.g., memos, letters, reports, etc.). Lessons are designed for students interested in learning secretarial and/or clerical skills. Aztec also offers basic to advanced instruction in understanding and utilizing medical vocabulary.

In addition to its workforce preparation modules, *Aztec* has developed a CD-ROM based series of "workbooks" that are available for download. These workbooks are designed to help students develop employment-related skills in the areas of reading and writing on the job, beginning accounting, and workplace performance activities.

Instructor and/or Student Support Features

Aztec's management system enables teachers to build customized courses and track student progress. Each module and/or unit is designed to function independently, allowing teachers to create individualized instructional paths for different students. In addition, the management system allows instructors to import different assessment measures to address program-specific accountability requirements. Administrative features include testing and practice activity results, start and completion dates, hours on task, and recommendations for further learning activities. Student support is concentrated in the feedback provided by program software, which direct student activities based on their responses to multiple-choice questions.

Other Product Capabilities

Aztec offers its courses either online or through CD-ROM. Institutions and/or individual learners have the option of using a "time learning" system, which allows users to pay for usage time in hour increments. Alternatively, users may purchase licenses that provide unlimited usage.

PLATO Learning Systems

Developer/Publisher	PLATO Learning, Inc.
Address	10801 Nesbitt Ave S, Bloomington, MN 55437
Phone	(800) 869-2000
Email	marketing@plato.com
Web address	www.plato.com
Target Audience(s)	ABE, pre-GED, GED, ESL
Subject Content	ABE reading, writing, vocabulary, math fundamentals and problem solving; workplace writing, reading for information; life, job, and parenting skills; GED 2002 test subject areas; ESL/ESOL; college preparation courses
Delivery Methods	Web; CD-ROM/Diskette, LAN
Diagnostics/Assessments	Fastrack diagnostic tests; tailored subject tests; GED simulated tests for each of the content areas
Correlations	Aligned to more than 50 standardized assessment systems, including the ABLE, AMES, CASAS, CTBS, GED 2002, GED competencies, TABE (forms 5 & 6, 7 & 8), and SCANS; also correlated to various state standards and benchmarks

Product Description and Key Features

One of the oldest instructional software packages, PLATO is a self-paced, interactive educational series that offers hundreds of hours of content instruction, skills practice, and testing for a broad range of students from ABE and ESOL learners to college-prep students. Materials are available on CD-ROM or diskette, via LAN, or online through PLATO's Web site (www.plato.com). Like Aztec and SkillsTutor, PLATO is designed to function either as an independent instructional system in which the software recommends activities or as a supplement to teacher-mediated instruction. Teachers may rely on software recommendations for individual students, or they may choose to assign specific lessons or courses to complement other activities. The system is designed to be flexible and includes extensive practice exercises, tutorials, and mastery tests.

Lessons and courses range from ABE, ESOL, and pre-GED levels to complete GED 2002 test preparation. Other courses focus on job skill development, parenting, and life skills. Each lesson is approximately 45 minutes in length. PLATO also offers English for speakers of other languages (ESOL) programs including English Discoveries and Reading Horizons. ESOL lessons include practice translating texts as well as spelling, grammar, and vocabulary development activities.

PLATO offers an optional audio component and a variety of presentation formats intended to maintain student interest. The level of software interactivity depends largely on when in the product's history a particular lesson was developed. For example, the newer GED modules are highly interactive and include animation, graphics, and sound effects, all designed to support different elements of student learning. The newer lessons require various browser plug-ins, such as Flash Player, which may prove problematic for distance learners using older computer systems.

Teacher and/or Student Support Features

PLATO's management system provides teachers with student progress reports that include information on test scores, time on task, and general progress at the individual and class levels. Finding individual lessons can be a time-consuming task for teachers as lessons are stored in content-related directories that require "drilling down" multiple levels to access. PLATO programs are sold in bundles, allowing teachers to select those courses and lessons that suit individual student and class needs. Sites purchase access based on numbers of students allowed to utilize the system at any given time. For example, a center may purchase 20 licenses yet serve 100 students. Although only 20 students would be allowed to utilize the system at any given moment, all 100 could use the system at different times.

Students receive feedback via the product software or from their teachers. *PLATO* offers hints to learners as they complete various exercises and recommends appropriate courses of study based on diagnostic test results. Teachers can provide written feedback to students via PLATO's internal messaging system, which is only available on LAN versions. Other online correspondence must be conducted through independent e-mail or bulletin board programs.

Diagnostics and Assessment Features

PLATO provides extensive diagnostics and pre- as well as post-testing for all courses. Course content and assessments have been correlated to various standardized assessments as well as state standards and benchmarks. The GED program includes a simulated practice test for each content area as well as immediate scoring (including essay tests), feedback, and progress reports.

SkillsTutor

Developer/Publisher	Achievement Technologies, Inc.
Address	10400 Little Patuxent Parkway, Suite 310, Columbia, MD 21044
Phone	(888) 391-3245
Email	info@skillstutor.com
Web address	www.skillstutor.com
Target Audience(s)	ABE, pre-GED, GED; vocational education and workforce preparation and training
Subject Content	Reading, writing, language arts, math, science, information skills, social studies, workplace readiness, life skills; workplace literacy and employment skills; reading, writing, math for vocational education
Delivery Methods	CD-ROM, Online
Diagnostics/Assessments	Internal
Correlations	Standardized assessments (e.g., GED 2002, ITBS, TABE), state and national standards

Product Description and Key Features

SkillsTutor is a test preparation program that offers skills-based tutorials on a wide variety of subjects (grades 6 through adult) including reading, writing, language arts, math, science, information skills, and social studies. All instruction is geared toward helping students succeed at test-taking. The software provides hundreds of activities that instruct students in the "core skills" commonly found on standardized assessments. The developers recommend eight learning modules or courses for ABE and GED students. These include three levels of reading comprehension, vocabulary, language arts, beginning algebra, math, and writing. SkillsTutor lessons have been correlated to a wide variety of adult assessment measures as well as to the GED exam and various state standards and benchmarks.

In addition to academic skills preparation materials, SkillsTutor offers lessons in general life skills. An affiliated program, Achievement Technologies' Computer Learning Works, provides lessons and courses in workplace maturity, career development, job search skills, interview, and basic office and vocational skills.

The SkillsTutor software includes easy-to-follow instructions in simple formats. Each screen introduces a single concept, rule, or idea followed by instruction in how to utilize the information and multiple opportunities (usually 8–10 problems per tutorial) to practice the skill. The screen format is straightforward, and the majority of lessons include an optional audio component to provide additional

support for users with lower level literacy skills. Screen features include instructions and clear icons (e.g., an arrow is used to advance to the next screen) as well as sound effects indicating when students have completed certain activities or answered questions correctly. Incorrect responses to questions are accompanied by hints and suggestions to aid students in determining the correct answer. The software directs students to appropriate instruction and is designed to keep students on track and in the program. Although students access the software through Achievement Technologies' Web site, users do not link to other Internet sites as part of their instructional experience.

Teacher and/or Student Support Features

SkillsTutor offers an online management reporting system that enables teachers to obtain information on individual students and classes. The system catalogues student assignments and activities, produces rosters, and reports on usage. Individual student reports contain pre- and post-testing results and diagnostic information, and indicate scores, number of minutes to complete activities, whether students have completed particular assignments or testing, and whether a student has attained a teacher-determined mastery level on a given subject.

Students receive support via software-provided feedback. Students log in with an ID and password to access their lesson plans and assessment information. SkillsTutor does not include an internal e-mail messaging system or bulletin board.

Diagnostics and Assessment Features

The SkillsTutor software offers a wide range of diagnostic tests and assessments. The diagnostic instruments are set in multiple-choice formats and are used to prescribe appropriate instructional paths. Each course also includes pre- and post-testing, and instructors can determine and preset mastery levels.

SkillsTutor lessons have been correlated to all major K–12 state and national standards and benchmarks as well as to a variety of adult assessments, including the TABE 7 & 8 and CASAS. Vocational basic skills tutorials have been correlated to a variety of vocational education tracks.

Multimedia Delivery Systems

English for All

Developer/Publisher	CyberSTEP
Phone	(916) 228-2580 (OTAN)
Web address	www.myefa.org
Target Audience(s)	ESOL
Subject Content	English language learning
Delivery Methods	Video and CD-ROM available from the Outreach and Technical Assistance Network (OTAN). Print materials are available free and can be downloaded from the Web site.
Diagnostics/Assessments	Informal internal
Correlations	CASAS, SCANS, California ESOL standards, Latino Adult Education Skills Project skill modules

Product Description and Key Features

English for All is an English language skills development program developed by the Cyberstep project partners Los Angeles Unified School District and the Sacramento County Office of Education (SCOE). The series utilizes multimedia (video, print, Web) and is available through SCOE's Outreach and Technical Assistance (OTAN) site. The video is offered via the Web and on CD-ROM and videotape. The series consists of twenty 15-minute programs that follow diverse characters as they engage in various work-related and personal activities ESOL learners are likely to encounter in daily life. The series includes a "wizard" who explains specific content, words, and directs activity. The accompanying print materials are available for free download in either PDF or rich text formats. The online component requires a student be enrolled in a class. Teachers must provide students with a password to use the online activities.

Online activities are comprised of streaming video, which is broken into instructional segments. Each segment is followed by a variety of exercises and activities, including listening to words again, matching the spoken word and text, defining terminology, understanding grammar, and answering content questions.

Instructor and/or Student Support Features

To support learning activities, English for All provides students with links to online, word-level translators in multiple languages. A course management system is provided to teachers to facilitate their teaching and to track student activities.

Diagnostics and Assessment Features

English for All provides informal tests throughout the activities. No formal or standardized tests accompany the materials.

GED Connection

Developer/Publisher	PBS LiteracyLink
Address	KET Enterprise Division, 560 Cooper Drive, Lexington, KY 40502-2200
Phone	(800) 354-9067
Email	AdultEd@KET.org
Web address	www.pbs.org/literacy
Target Audience(s)	GED preparation: language arts, reading and writing, science, social studies, math
Subject Content	All content directly related to five GED test subject areas
Delivery Methods	Video, print, online from KET; videos available for viewing and recording on PBS stations as well as via satellite; satellite distribution to colleges via PBS Adult Learning Service (800) 257-2578
Diagnostics/Assessments	Practice activities and tests
Correlations	GED 2002 test

Product Description and Key Features

GEDC is a newly developed product that utilizes multimedia to deliver instruction in the GED 2002 test content areas. GEDC presents instruction using video, print, and online capabilities. The series includes an orientation and thirty-eight 30-minute videos that chronicle teaching and learning in actual classroom settings. The videos include documentary footage, historical reenactments, examples of scientific and other experiments, interviews with writers and various professionals, and other real-life scenarios related to the content on the GED 2002 exam.

Three workbooks cover each of the five test areas. Each provides a GED-like pretest with an "evaluation chart" intended to help students determine areas in which they need to build skills and add content knowledge. The pretests provide explanations and a rationale for pretest questions as well as relevant workbook page numbers, videos, and online activities that address the skills and content on which students should focus. Each workbook unit is correlated to the videos and includes a "Before You Watch" section that introduces key components and ideas and alerts students to central concepts presented in the videos. In addition to content and skill development activities, the workbooks provide tips and strategies for taking each section of the GED exam.

The online component offers complementary instructional elements and practice activities. Students are directed to a "home space" from which they can access either GEDC or WES lessons. Screens can be confusing, although developers have worked to simplify its visual presentation and requirements. Unlike the skills development products, GEDC relies on browser features such as the "back" button

and Web links to aid student navigation both within the site and on the Internet. Utilizing Web browser features can both confuse students and provide them with additional computer-based skills they will need in other settings.

Sample tests that mirror GED testing formats provide students with immediate feedback. Other online features include a portfolio storage system that provides students with text boxes in which they can write answers and store relevant information. Students also have access to a similarly formatted journal for storing personal information and notes. The online component also includes links to other Web sites containing GED-related content. Additional online resources include links to reference materials, including a dictionary, thesaurus, encyclopedia, atlas, conversion tables, and a GED calculator. Throughout GEDC materials, students are provided with practice questions and essays as well as test-taking tips and strategies.

Teacher and/or Student Support Features

Students are provided with a password-protected online "home space" that enables users to access all Web site activities, save completed written assignments, and review their practice test scores and related computer and teacher feedback. Students have dedicated server space that includes boxes in which they can compose and save course-related text as well as space for journal writing and note taking. The text boxes are designed to store information. No formatting options are available, and students must copy their writing to traditional word processing software to make and save formatting changes.

GEDC offers an online management system designed to enable teachers to track student progress and provide feedback on activities students complete for their portfolios. The management system includes e-mail for teacher–student correspondence. The system does not track student time online.

Diagnostics and Assessment Features

GEDC offers two versions of practice tests for each subject. Students can work online to complete the practice tests and receive immediate, computer-scored feedback. The workbooks also provide pre- and post-tests for each subject area. All GEDC lessons and activities have been correlated with the GED 2002 exam.

Workplace Essential Skills

Developer/Publisher	PBS Literacy Link
Address	KET Enterprise Division; 560 Cooper Drive, Lexington, KY 40502-2200
Phone	(800) 354-9067
Email	AdultEd@KET.org
Web address	www.pbs.org/literacy
Target Audience(s)	Workforce Training
Subject Content	Employment skills, workplace written and oral communication skills, math, and reading
Delivery Methods	Video, print, online through KET; video to community colleges through PBS Adult Learning Service (800) 257-2578
Diagnostics/Assessments	Preview skills tests
Correlations	TABE, CASAS

Product Description and Key Features

WES is a multimedia introduction to employment-related content and issues. The program is designed to introduce students to the job-search process, guide them in developing employment-related skills and gathering general content knowledge, and teach them skills that will help maintain and/or improve upon their current employment. WES is divided into four workplace-related modules or strands: employment, oral and written communication, reading, and math. Instruction is provided via video, print, and online components.

The WES video component is comprised of an orientation and twenty-four 30-minute videos that model appropriate workplace behaviors, present students with common issues employees face, and introduces different purposes of reading, writing, and math on the job. Each video follows both real-life individuals as they utilize specific skills on their jobs and fictitious characters encountering the types of problems job seekers with limited experience are likely to face.

WES provides four accompanying workbooks, one for each of the modules. Workbooks provide students with additional content knowledge and opportunities to practice and extend skills introduced in the videos. Each workbook begins with a section entitled "Before You Watch," which points out key ideas and issues in the videos that students should particularly note. In addition, each workbook includes a diagnostic skills preview test designed to help students identify specific areas for development. Answers to test questions are provided, along with explanations and references to pages in the workbook that address the skills.

As with GEDC, the online component for WES utilizes Web browser features as part of its delivery system. Students must learn to scroll up and down,

page forward, use the "back" button, and to click on Web links to access other Internet sites. These additional features have the potential to confuse students, although they also provide students with additional technology skills that will aid them in various computing environments.

The online component is comprised of two learning activities per unit. Students begin by online reviewing a clip from the video, then see a "key ideas" section. Users respond to questions by writing in the text boxes the program provides. The second learning activity takes directs users to other employment-related Web sites where students can gain additional information and/or practice specific skills (e.g., calculating percentages). Each Internet Activity generally contains several tasks to be completed and helps students become more comfortable accessing and utilizing the Internet.

Teacher and/or Student Support Features

Each student is provided with a password-protected online "home space" that enables users to access all Web site activities, save completed written assignments, and access their practice test scores and teacher feedback. Students have dedicated server space that includes space for journal writing and note taking. The text boxes are designed solely to store information. No formatting options are available, and students must copy their writing to traditional word processing software to make and save formatting changes (e.g., to format a resume or cover letter).

WES offers an online management system designed to enable teachers to track student progress and provide feedback on activities students complete for their portfolios. The management system includes email for teacher-student correspondence. Like GEDC, the WES system does not track student time online.

Diagnostics and Assessment Features

WES provides informal assessments for learners. The "Skills Preview" sections at the beginning of each workbook are designed to help users target their weaknesses. Each workbook contains a post-assessment measure as well. Within the workbooks, each unit contains practice items and sample questions.

Although no standardized assessments have been developed specifically for WES, it has been correlated to the TABE and CASAS standardized assessment systems. These correlations are available on the PBS LiteracyLink Web site.

Instructional Staff Provided by Developer

University of Nebraska–Lincoln Independent Study High School

Developer/Publisher	University of Nebraska—Lincoln: Division of Continuing Studies
Address	P.O. Box 839400, Lincoln, NE 68583-9400
Phone	(402) 472-4422
Email	unlishs2@unl.edu
Web address	www.unl.edu/ishs
Target Audience(s)	High school completion
Subject Content	Traditional high school curricula
Delivery Methods	Online, print
Diagnostics/Assessments	For online courses: self-check tests (ungraded), computer-scored unit evaluations, and tailored subject exams (can be completed online or via paper and pencil; must be proctored by the student's designated supervisor)
Correlations	N/A

Product Description and Key Features

The Independent Study High School (ISHS) was founded in 1929 and provides a full academic curriculum associated with traditional high school offerings ranging from special needs to college preparation course work. Students must earn 200 credits to graduate with a high school diploma from ISHS. Tuition is based on credit hours and types of courses selected. ISHS offers traditional distance textbook-based courses as well as Web-based courses listed each semester on the Web site. Major required content areas include language arts, science, social studies, math, multicultural studies, financial skills, foreign language, and career planning.

The ISHS is geared primarily to alternative high school students and less to the ABE/ASE learner.

Although some students visit the ISHS facility, the majority of correspondence between students and teachers and other school staff is through regular e-mail, asynchronous bulletin boards, telephone, and/or fax transmissions. Students have the option of submitting written assignments via fax or e-mail, online (for online courses), or through the U.S. mail.

Teacher and/or Student Support Features

As with traditional high school programs, ISHS has a full educational faculty and support staff including counselors, administrators, teachers, and a principal.

Students working on online courses have a dedicated home space that provides them with information regarding their course load, school-based contacts, and other relevant resources. Within each course is a toolbar that contains links to an asynchronous discussion board, an outside Web resources folder, a syllabus, and a search feature. In addition, a folder titled "My Work" serves as the student's assignment portfolio. It includes all saved assignments, text boxes for written assignments, completed projects and evaluations, and all teacher commentary and feedback.

Diagnostics and Assessment Features

Students enrolled in online courses have a variety of informal and formal assessment measures available to them. Each online course contains informal, self-check tests that provide immediate computer-generated feedback and are intended for student use only. In addition, each unit has a computer-scored evaluation component. Unit evaluations are unsupervised, open-book activities. Other exams (e.g., midterms and finals) are tailored to course content and are proctored.

OnLine Training Institute

Developer/Publisher	OnLine Training, Inc.
Address	2669 Forest Hill Blvd., West Palm Beach, FL 33406-5953
Phone	(866) 357-0841
Email	harned@oltraining.com
Web address	www.oltraining.com
Target Audience(s)	GED preparation
Subject Content	Coursework in the five GED test areas
Delivery Methods	Online
Diagnostics/Assessments	
Correlations	GED 2002 exam

Product Description and Key Features

The OnLine Training Institute offers a fee-based GED preparation program. The program is offered entirely online and divided into the five GED test areas. Students may opt to take individual subject-area courses or purchase the entire package. The Institute's GED instructor is responsible for designing and updating all course work as well as for providing student support and feedback on various assignments. With the exception of a few recommended supplemental readings, the majority of course materials are available to download from the Institute's Web site.

Course work is self-paced, and students are expected to contact the course instructor regularly. Courses are intended to be completed in 40 hours or less,

though students are not required to finish courses in the 40-hour estimate. Student progress is tracked through an online time monitoring system that provides the instructor with information about how often students log on to the system and how long they spend on each lesson.

Teacher and/or Student Support Features

The Institute provides student support through various electronic portals. Students have access to chat rooms and discussion lists in which they can communicate with other Institute students and receive tutoring from the instructor. Also included are an e-mail messaging system and a home page where announcements and Institute-related business is posted.

Diagnostics and Assessment Features

OnLine Training Institute's software is interactive and includes diagnostics and pre- and post-assessments that mirror GED testing formats. The instructor provides feedback on student writing. Other assignments and tests are graded by a "virtual classroom system" that provides immediate feedback to learners as they complete lessons and tests.

Appendix B

Interview Guide for a Program Implementing Online Distance Education

1. What were the incentives for your program to become involved in online distance education?

2. What are the incentives for your teachers to become involved in online distance education?

3. How are teachers (and administrators) trained to teach in online distance education programs? What are the educational qualifications of the teachers who are involved in online distance education? Are these teachers different from other teachers in your program?

4. Is online distance education used for the entire instructional program, or is it used as an extension of classroom activities?

5. How do you recruit students into the online distance education program? Why do they choose to join the program? Would they have been able to attend face-to-face classes? Are they from your service area? If not, does this create problems with other programs in other locations?

6. How do you retain students in your program? Have you organized group support for your distance education students? Is this support face-to-face or electronic? How are the support groups organized? What do they do?

7. How is student attendance measured? How do you determine intensity and duration?

8. How do students access the computer technology that is required for online distance education? What sort of technological support do they need? How do they get that support?

9. How is instruction organized: Individual or group instruction? If group instruction is used, how are the student groups formed? Do the groups cross cultural, social, and linguistic lines? How is group interaction fostered and maintained? For what purpose is interaction used?

10. Are face-to-face sessions required for the students? If so, for what purpose(s)? When?

11. How is instruction customized to the students' needs and interests? How are learning differences accommodated?

12. What level(s) and type(s) (e.g., GED, family, workplace) of adult literacy education seem to be best suited to online distance education?

13. What type(s) of learners seem to be most successful in using online distance education? What are the characteristics of your adult learners that seem to lead to success?

14. How is structure provided in your online distance education program? Do your students work through a given set of curriculum materials on the Web? Do print and video supplement the online instruction? (Or does the online instruction support a print and/or video curriculum?) Do they sign on at given times, or is instruction handled asynchronously?

15. Are you using a distance education curriculum developed by someone else, or are you authoring your own materials? If the latter, what authoring tools are you using?

16. Are you using publicly available Web sites in instruction? If so, for what purpose? What are some examples?

17. How is assessment being handled? How do you know what students are learning?

18. How are you evaluating your online distance education literacy program? What criteria are you using? What do you perceive to be the greatest strengths and weaknesses?

19. What advice would you give to another program considering implementation of distance education?

20. What is your philosophy of adult learning? How is that reflected in the online distance education program?

21. Are there any emerging technologies that you would like to consider using in the future with your distance education students?

Appendix C

Project IDEAL Distance Education Planning Process

In the Pennsylvania Workplace Essential Skills distance experiments, each literacy provider had to develop detailed plans around each of the issues shown below. This particular list was developed with the specific requirements of WES in mind. Also, educators in this experiment were not yet bound by particular assessment requirements, and this is reflected in the particular items under tracking students. With minor modifications, this list of issues can be applied to most distance experiments.

Recruitment

1. Identify the target audiences for WES in your service area.
2. Describe the target audience for studying WES at a distance.
3. What strategies will you use to recruit this target audience? Will you have any partnerships with other agencies?

Orientation

4. Where and how often will you provide orientation for new students? Will it be done one-on-one or in group sessions?
5. What orientation will you provide about WES content, computers, and the Internet? (Indicate major points to cover and how long the session(s) might take.)
6. What study skills training will you provide, especially in how to work alone at a distance?
7. You can select the parts of WES a student uses. How will you assess individual student needs and develop a study plan for each student?
8. How much study time (per week) will you recommend overall? For the video, workbook, and online components?
9. What will you recommend to students about studying the video—just view to get some ideas or view using the "Before You Watch" and "After You Watch" instructions in the workbook?

10. What expectations will you set for students regarding how and how often you will provide feedback on their work? Will you provide feedback on the workbooks and online components?

Access & Support

11. How will you distribute the workbooks and videos?

12. How will students access the online component—personal computer at home, personal computer at a neighbor's house, computer at the library, computer at another location?

13. How will you solve technical problems students have with computers and the Internet in general, and the online component in particular?

Communication/ Teaching

14. How will you communicate with learners (telephone, mail, e-mail, face to face)?

15. How will you help students follow their learning plan?

16. How will you provide feedback to students about their progress and performance?

17. What strategies will you use to encourage learners to stick with the program over a long period of time? Will you develop any kind of "support group" among groups of learners?

Tracking Students

18. What form(s) will you use to monitor your contacts with students? Do you have the equivalent of a "grade book" used by classroom teachers?

19. Will you track how much time students spend on various activities—video, workbook, and online? If yes, how will you gather this information?

20. [At the end of this experiment] you need to provide data on the students that entered your distance learning program. What criteria will you use to designate a student as "active," "inactive," or "dropped out"? How will you judge whether a student has dropped out of the program and the reasons for doing so?

21. What criteria will you use to determine that a student has successfully completed a unit of study or made satisfactory progress?

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